Vol. XVI. OCTOBER, 1935 No. 62

MEDICAL LIBRARY JAN 10 1936

The Journal of Neurology and Psychopathology

Edited by

S. A. KINNIER WILSON

WITH THE ASSISTANCE OF THE FOLLOWING EDITORIAL COMMITTEE:

EDWIN BRAMWELL
T. GRAHAM BROWN
A. FEILING
R. G. GORDON
J. G. GREENFIELD
C. C. WORSTER-DROUGHT
R. FOSTER KENNEDY
H. G. BAYNES
WILLIAM BROWN
HENRY DEVINE
R. D. GILLESPIE
BERNARD HART
C. STANFORD READ
R. M. STEWART
C. MACFIE CAMPBELL
EDITOR OF THE BRITISH MEDICAL JOURNAL

CONTENTS

		PAGE
Original Papers		
Neurological Complications of the Third Molar Tooth	C. BOWDLER HENRY	97
Crystal-Formations in the Spinal Fluid and their Diagnostic Significance	K. ZEINER-HENRIKSEN	111
Meningeal Lipomas in the Foramen Magnum	WALTER MISCH	123
A Case of Recurrent Attacks of Prolonged Sleep	M. S. JONES	130
Short Notes and Clinical Cases		
The Pathogenesis of Cataplexy on Anger	MAX LEVIN	140
Regarding the 'Stuff' of which Dreams are Made—The Psychophysiological Basis of Dreams	F. PARKES WEBER	144
Editorial		
The Pathogenesis and Treatment of Acute Anterior Poliomyelitis		149
Abstracts		153
Reviews and Notices of Books		185

ISSUED BY THE BRITISH MEDICAL ASSOCIATION

LONDON: BRITISH MEDICAL ASSOCIATION HOUSE, TAVISTOCK SQUARE, W.C.1.

Published Quarterly. Subscription 30/- per annum. Single Numbers 8/6 net. Post Free

EDITORIAL NOTICES

THE EDITORIAL COMMITTEE will welcome original articles for publication in the JOURNAL. They should be addressed to *Dr. Kinnier Wilson, 14 Harley Street, London, W.1 (Neurology)*: *Dr. Bernard Hart, 94 Harley Street, London, W.1 (Psychopathology)*: *or to any other member of the Editorial Committee.* The Copyright of papers appearing becomes the property of the JOURNAL unless the authors state before publication that they reserve the rights to themselves.

They also invite correspondence, criticisms, and suggestions from readers, which may aid in the development of the JOURNAL.

Contributions should be as concise as possible, and be forwarded at least six weeks before the date of publication. Papers are best type-written, and carefully revised, since alterations in type are costly. References should be made in the following order:—year—volume—page—and be inserted in brackets in the text where they occur, thus: (BRIT. MED. JOUR., 1912, ii, 579), or given in order at the end of the paper. Where practicable, articles should conclude with a short summary of their contents.

Illustrations.—These, whether plain or coloured drawings, or photographs, should be rendered as perfectly as possible. The Publishers undertake the preparation of the blocks, but not of the originals.

Reprints.—Owing to the present abnormal costs of production, free reprints of articles cannot be given until further notice. If desired they may be obtained by payment, but notice must be given when the proof is returned.

Subscriptions.—30/- net, post free; single numbers, 8/6 net.

Business Communications and applications for *Advertisement Space* should be addressed:—

THE FINANCIAL SECRETARY AND BUSINESS MANAGER,
British Medical Association,
B.M.A. House, Tavistock Square, London, W.C.1.

CAMBERWELL HOUSE

Telegrams: "PSYCHOLIA, LONDON." **33 PECKHAM ROAD, LONDON, S.E.5.** *Telephone:* Rodney 4731/2.

FOR THE TREATMENT OF MENTAL DISORDERS

Also completely detached Villas for mild cases, with private suites if desired. Voluntary patients received. Twenty acres of grounds. Hard and Grass Tennis Courts, Putting Greens, Bowls, Croquet, Squash Racquets, and all indoor amusements, including Wireless and other Concerts. Occupational Therapy, Callisthenics and Dancing Classes. X-ray and Actino Therapy. Prolonged Immersion Baths. Operating Theatre, Pathological Laboratory, Dental Surgery and Ophthalmic Department. Chapel.

Senior Physician: Dr. HUBERT JAMES NORMAN, assisted by three Medical Officers, also Resident and Visiting Consultants.

An Illustrated Prospectus, giving fees, which are strictly moderate, may be obtained upon application to the Secretary.

The Convalescent Branch is **HOVE VILLA, BRIGHTON, and is 200 feet above sea level.**

HOME for EPILEPTICS, MAGHULL

Chairman: Brig.-Gen. G. KYFFIN-TAYLOR, C.B.E., V.D., D.L. (near LIVERPOOL).

Farming and open-air occupation for patients. A few vacancies in 1st and 2nd class Houses

Fees: 1st class (men only) from £3 per week upwards. 2nd class (men and women) 32/- per week.

For further particulars apply: C. EDGAR GRISEWOOD, *Secretary*, 20 Exchange Street, East, Liverpool, 2.

ARCHIVES OF DISEASE IN CHILDHOOD

PUBLISHED BI-MONTHLY

Yearly Subscription (6 numbers), **25s. 0d.** Single Copy, **4s. 6d.**

B.M.A. HOUSE TAVISTOCK SQUARE, W.C.1

THE JOURNAL OF NEUROLOGY AND PSYCHOPATHOLOGY

Vol. XVI. OCTOBER, 1935 No. 62

Original Papers

NEUROLOGICAL COMPLICATIONS OF THE THIRD MOLAR TOOTH

By

C. BOWDLER HENRY, LONDON

IN the course of an investigation* into the complications of eruption of the wisdom teeth I have collected some 700 cases from the literature and from private sources. In a number of these cases the symptoms were neurological rather than dental, and in some of them the patients had been treated by neurological methods for considerable periods of time without benefit, only to be relieved immediately as soon as the real cause was discovered. It seems to me, therefore, worth while to put some of these cases on record in the hope that similar errors in diagnosis may be averted in the future.

NEURALGIA

Neuralgic pain is such a common association of dental disease that it is unnecessary to stress the possibility that an unexplained neuralgia may have its origin in a tooth. Of the very many cases of neuralgia in my records I only wish to describe in detail those where the condition strongly resembled or was even mistaken for tic douloureux. Macphee [1] records two cases. A female of 55 had had intermittent neuralgia for 35 years and was completely cured of it on extraction of a buried and impacted horizontal right lower wisdom tooth, which was carious. A lad of 17 was treated for nearly a year with large doses of quinine for a severe neuralgia without obvious dental cause. X-rays showed that both his lower wisdom teeth were deeply impacted and pointing backwards, and their extraction gave complete relief. André [2] reported the case of a woman of 40 who suffered from painful facial neuralgia accompanied by œdema and ear discharge. The Gasserian operation was being considered, as an injection of camphorated alcohol had given only temporary relief. X-rays, however, showed the real cause:

* The preparation of my Arris and Gale (1934) and Hunterian (1935) Lectures (Royal College of Surgeons of England).

an upper wisdom, which was forcing itself between the roots of the tooth in front. Buchanan [3] records another case of intense neuralgia resembling tic douloureux where all kinds of treatment had been tried and failed, so that the patient had given up hope and decided to become a drug addict. Two impacted upper wisdoms were removed and within three weeks all the symptoms had gone. Jarzab's patient,[4] a woman of 28, was diagnosed as a case of trigeminal neuralgia, and the cause of the pain was a supernumerary or fourth molar which had been completely concealed by the imperfectly developed third molar in the first X-rays which were taken. She was completely cured by its extraction. This case resembles one contributed to me by Mr. Dawson Buckley (Nice), whose female patient suffered from severe neuralgia, with loss of sleep and migraine. All the teeth were present,

FIG. 1

including the wisdom teeth, and in good order. A dental radiograph, however, revealed a small buried supernumerary denticle absorbing its way into the side of the root of the upper wisdom tooth on the affected side (fig. 1). The pain was due to pulpal irritation of the eroded wisdom tooth and was entirely mitigated when this tooth and the denticle were removed.

Other anomalies besides the presence of a supernumerary are apt to give rise to grave neuralgic pain. Morel [5] records a case where the roots of the second and third molars were fused and the patient suffered from terrible neuralgia and was threatening suicide.

Dr. Galway Murray had a female patient aged 47 who had suffered for nearly five years from acute spasmodic attacks of pain on the left side of the face, left upper eyelid and forehead. The least touch in this region would produce exquisite pain. The pain had recently extended to the upper lip. She had no visible upper teeth, but X-ray examination revealed a buried

third molar in the left upper jaw, and when that was removed she suffered no more, and has remained well for ten years. Mr. E. D. D. Davis sent me notes of a female aged 22 who had been treated for some time as a case of severe trigeminal neuralgia along the course of the right auriculotemporal nerve. A right lower wisdom tooth was discovered impacted and the pain ceased completely when the tooth was removed.

Dr. H. E. Harris (Bristol) wrote to me of a man of 45 who suffered from severe incessant neuralgia in his right cheek. An alcohol injection was ineffective and later a portion of the inferior dental nerve was removed. The pain, however, persisted, and his life for four years was absolutely miserable. Eventually the late Sir Victor Horsley removed his Gasserian ganglion and cured him. About 15 years later, when dental radiography became more common, an impacted wisdom tooth was found. Dr. Harris thinks that this may have been the cause of his trouble. Dr. E. Miles Atkinson (Bath) reports the case of a female of middle age who had severe trigeminal neuralgia of the first and second division and had had varied treatment, including alcohol injections. She was referred to him for ear, nose and throat investigations, which proved negative, but two impacted wisdoms had already been discovered. When these were removed her attacks of pain ceased. Mr. R. V. Bradlaw's patient, a female of 30, suffered severe occipital pain radiating down the neck for nine months. There were no intermissions, though the intensity of the pain varied. She had attacks of blurred vision and giddiness. Her doctor had diagnosed migrainous neuralgia and prescribed luminal. The sinuses were investigated, but were normal. The right lower second molar tooth was found to be tender to percussion, and a probe introduced on its distal aspect came into contact with an impacted wisdom tooth. After the removal of this tooth the patient had no pain of any kind.

Mr. Padgett sent me the story of a young medical man who was anxious to join the R.A.M.C. during the War, but had been rejected on account of frequent and violent attacks of trigeminal neuralgia which entirely incapacitated him. He had consulted eminent surgeons and had had his frontal sinus opened up and two operations on the Gasserian ganglion. Only when this proved futile was an X-ray taken, which revealed a horizontal left lower wisdom tooth with fused roots. With some difficulty the tooth was removed under gas and a complete cure resulted. Within three months he was happily at work in the army. Mr. Padgett remarks ' How astonishing to delay taking that X-ray picture ! The life of this young doctor had been made a perfect misery to him and he was in that highly neurotic and depressed condition which might easily have led to suicide.'

PRESSURE ON THE SECOND MOLAR

Severe pain may be caused by pressure of a badly placed wisdom tooth on the tooth in front. A curious example of this was sent to me by Mr. E. S. W. Little (Newport) where the wisdom tooth was erupting immediately

beneath the already erupted second molar and causing pressure erosion of its pulp. The arrangement of the two teeth was like that of a permanent tooth erupting below a temporary one. A similar case has been recorded by A. T. Pitts.[6] More commonly, however, the wisdom tooth is placed horizontally or obliquely and presses into the neck of the second molar, destroying its dentine and sometimes eroding its pulp. Mr. L. Trethewey (Plymouth), Mr. F. C. Blaaberg, Mr. H. L. J. T. Hardwick and Mr. G. T. Harborow (London) sent me examples of this, and so also did Mr. J. N. Hine (Jersey), but in the latter case there was a further complication in that the second molar itself was impacted against the first. The patient, a doctor's wife, had suffered severe attacks of neuralgia for fourteen years, sometimes suffering from sickness as well. The root of the second molar was largely absorbed by the pressure of the third. A case (fig. 2) sent to me by Mr. D. E.

FIG. 2

Robinson (Blaenavon), was that of a young man of 30, who had neuralgic pains on the right side of the face as a result of one of these horizontal impactions.

HEADACHE

Headache is a symptom which is less obviously associated with dental causes than facial neuralgia, and it is therefore of interest to note that this symptom appeared in no less than 55 of my 700 cases. L. R. Main[7] has drawn attention to the importance of considering all cases of headache seriously from the dental point of view. He thinks that a dental reflex pain is generally found in the occipital region, though it may occasionally be in the parietal region. He suggests that the occipital headache may be due to the anastomosis between the great occipital nerve and the fifth cranial nerve. He also cites cases where the pain was supraorbital: for example, a female had severe frontal neuralgia with tick-like noises in her left ear. After a year an X-ray revealed fusion of her second and third molars. Another case of Main's was that of a clergyman of 36 who had serious thoughts of

giving up the ministry on account of his severe headaches. He had been investigated at a famous medical centre and no cause had been found. His headaches were, however, completely cured by the removal of his impacted lower molars. The same teeth were apparently the cause of headache, gastralgia and dysmenorrhœa in a woman student of 20, for the symptoms all disappeared when the teeth were extracted. T. A. Buckley[8] records the case of a woman patient of 27, who had had more or less continuous and severe temporal and frontal headache for ten years with occasional vomiting. For two years she had been taking codein and 50 grains of aspirin a day. She was most carefully investigated, and the urinary and gastrointestinal systems were excluded. A brain tumour was suspected, but the radiologist who X-rayed her skull to confirm this diagnosis drew attention to a fully developed tooth just below the coronoid process of the mandible. The day

FIG. 3

FIG. 4

after the removal of this tooth she was free from headache for the first time in several years and thereafter headaches were only occasional.

The following cases have been sent to me privately. An officer aged 22 complained at first of vague headaches which later became more severe, and sleep was disturbed. He had discomfort in his mouth and trismus. When the impacted lower wisdoms (fig. 3) were removed his pain ceased (Major S. H. Woods, Army Dental Corps).

A woman of 28 had suffered for some years from severe headache, accompanied by sickness and absolute prostration. The attacks came almost every week and wrecked her social life and relaxations. Her doctor was unable to find any cause, but eventually radiographs of the jaws were taken and four impacted wisdom teeth were revealed (fig. 4). The second molars were extracted to make room, and with this relief of pressure the distressing symptoms 'abated to a degree sufficient to indicate that the impacted wisdoms were in part if not wholly responsible' (Mr. A. A. Clark). Another case was that of a female of 23, who had had frequent attacks of

bad headache, often ending with severe vomiting, for three or four years. Eventually the pain began to localise in the wisdom tooth area and the X-ray then showed that this tooth was impacted. After its removal there were no further attacks (Dr. O. Bjerrum, Denmark).

A male of 21 suffered from headaches, inability to concentrate, irritability and failure to perform the most simple daily tasks required of him as an electrical engineer. Two lower wisdom teeth were found to be buried and their extraction restored him to full health and mental vigour (Mr. K. W. Whitworth, Coventry).

Dr. E. Miles Atkinson wrote to me of a case of supraorbital neuralgia in a man of 22, relief being obtained from the extraction of a buried lower wisdom tooth on the same side.

A man of 25 suffered severe pain on both sides of the head, and was diagnosed and treated as migraine, without any benefit. Both lower wisdoms

Right FIG. 5 Left

were buried and obliquely placed and the pain did not return after their extraction (Dr. C. F. L. Nord, Holland).

A patient of my own was a man of 50 who had incapacitating neuralgia of several years' duration in the left parietal region. His lower wisdoms were both buried and horizontal, with the nerve canal dipping to run underneath them. On the left side the radiograph (fig. 5) shows the canal to be somewhat constricted. The second molar had already been extracted without alleviation of the symptoms, but they disappeared immediately upon removal of the third molar.

A girl of 18, a doctor's daughter, had suffered with typical migraine since the age of 12, the attacks coming on about every fortnight and keeping her in bed for 24 to 48 hours. She complained of being always tired, and also of attacks of pain over the sacroiliac joints which prevented her from standing for more than a quarter of an hour. She had unerupted wisdom teeth, and when these and her crowded second premolars were extracted all her symptoms ceased, including the migraine (Dr. C. W. Kay, Lymington). Another case of Dr. Kay's was that of a man of 22 who had

severe occipital neuralgia with attacks of momentary loss of consciousness. He had bad pyorrhœa and all his teeth were removed. If anything, however, his symptoms became worse rather than better. His teeth had not been X-rayed, and when this was done impacted molars on both sides were revealed. Their extraction cured him completely.

Two cases of severe postoccipital neuralgia were sent to me by Major S. H. Woods. In the first case the lower wisdoms were buried and obliquely pressing against the second molars. The second patient, a man of 35, was taking increasing quantities of aspirin for relief; there was a small right lower wisdom pointing backwards. Both were cured by extraction. Drs. T. H. Bishop and S. D. McClean sent me notes from Persia of a robust man of 33 who complained of pain behind the eyeballs, at the back of the head and in the lumbar region. A thorough physical examination revealed no cause for his condition. Both his antra were punctured and irrigated without relief. He had a complete upper dental plate. When stereoscopic X-rays of the skull were taken an unerupted left upper wisdom tooth was found. The symptoms disappeared after its removal. Its crown was bathed in dark, blood-stained pus.

A less common distribution of pain was recorded by Giorelli.[9] The patient complained of neuralgia of the tongue, beginning spontaneously or else excited by contact with the teeth. He was a man of 56 years of age, and X-rays showed a buried right lower wisdom tooth. His recovery was complete when this was removed.

Lebourg [10] reports a case of lingual neuralgia complicating the extraction of a right lower wisdom tooth which had an apical infection causing a bony abscess. The day after the operation, and for six months after, the patient suffered from pains and an incessant sensation of prickling in the front right half of the tongue. No lesion could be found and the pain was not relieved by mouth washes. Lebourg offers no explanation beyond saying that the trouble was inflammatory and not reflex.

PAIN REFERRED TO ARM AND SHOULDER

In a case reported by Scheiwe [11] a man of 30 had severe pains in the left side of the neck for over ten years before the pain finally settled in his lower molars and stimulated his advisers to take an X-ray. The distal root of the lower left first molar was found to be extremely eroded, and both it and the second molar were tilted, with a follicular cyst between them at the bottom of which lay the wisdom tooth. Grammel [12] had a patient who suffered from weakness and neuralgia of the left arm, which ceased at once when a horizontally impacted left lower wisdom tooth, pressing on the second molar, was extracted. A woman of 26 (case recorded by Tellier and Beyssac [13]) had been in ill-health for three years, and suffered from rheumatic pains in the left shoulder and arm for about six months. All the muscles in this part of the neck and shoulder were painful and tender. Then a swelling appeared in

the mouth behind the second molar tooth. It remained for a month, and tension in it became acute for two days with a recrudescence of the neck and shoulder pains. The patient recovered within a week of removal of a badly placed wisdom tooth, and there was no recurrence in three years. Another of their patients—a woman of 47—had been unable to work for two months as a result of ' paralysis ' of the arm, and torticollis. She was completely cured a fortnight after the extraction of an impacted lower wisdom tooth. Yet another, a woman of 32, had torticollis and pain in the left shoulder after extraction of a septic third molar, but recovered in 17 days.

Mueller [14] records a curious case where a doctor's daughter aged 15 developed weakness of the legs with occasional impairment of vision. By the time she was 17 she could only walk with assistance and could not see at all except when she was sitting up, and then could only distinguish large objects. There was evidence that her partially erupted wisdom teeth were pressing severely on the second molars. The latter were extracted and she showed improvement within a week. At the end of three months she was perfectly well except that the vision in her right eye appeared to be lost permanently. Dr. C. W. Kay sent me notes of a lady of 27 who had complained of various symptoms for about five years, including pains in both ears and in the throat, and neuritis of both arms from the fingers to the elbow. The patient became neurasthenic and suffered from lassitude and anæmia with some loss of weight. A throat specialist had ascribed all her troubles to her tonsils, which had been removed, without benefit. A radiograph of her teeth was taken on the off-chance that there might be something there, and an impacted lower right wisdom was shown ; its roots were in intimate relationship with the inferior dental canal. After the extraction of the molar she lost the neuritis and other pains, gained in weight and felt much better. Another case of brachial neuritis was that of a captain in the Navy, sent me from Malta by Surg. Lt.-Comdr. Eglington. His mouth was searched for a possible focus of infection and a deep sinus was found behind the second left lower molar. X-rays showed that a portion of root had been left behind when the wisdom tooth had been taken out a little while before, having apparently been vertically impacted. The neuritis cleared up when the fragment was removed, but recurred some months later after the incomplete extraction of the lower left wisdom, the roots of which had been left impacted. The neuritis was finally relieved when this was attended to.

There appeared to be no infection in a case sent me by Mr. A. H. Adcock (Birmingham), that of a woman who had a horizontally impacted right wisdom tooth, and who suffered so severely from neuritis that she was unable to lift her right arm. For two years she had had indefinite pains in the side of the neck ' as though I had been sitting in a draught.' The wisdom tooth and the tooth in front of it were removed, and the patient complained of the typical pain in her arm when the socket was syringed. Another female patient had suffered from incapacitating headaches for over six years, and

was finally seen by Dr. R. R. Macintosh (London). She had had chronic pains in her right shoulder, and an impacted wisdom tooth had been removed but sepsis had developed in the socket. When the syringe was inserted to irrigate the socket, the patient cried out in agony because of the pain in her head, similar to that which had incapacitated her on and off for years. She had never connected the headaches with the tooth, but she did not suffer from them again after the extraction.

Mr. J. F. Gow (London) sent me notes and skiagrams (fig. 6) of a female patient of 22 who had severe sciatica which 'cleared up wonderfully' after

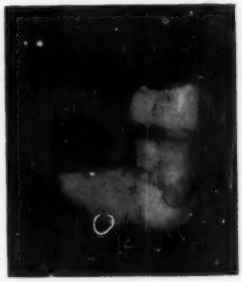


FIG. 6

the extraction of a horizontal wisdom tooth which had completely eroded the roots of the tooth in front.

PARALYSIS AND SPASMS

Rouveix [15] reports the case of a man of 36 who suffered from complete trismus and painful left facial spasm, accentuated by violent, rapid and sudden contractions like those of tic douloureux. There were also some spasms in the left leg and a temperature of 40° C. The patient was diagnosed and treated for delayed tetanus, but ultimately a dentist was consulted and a painful spot found at the level of the roots of the left upper wisdom tooth, which was in a normal position and appeared healthy. The tooth was extracted and recovery followed.

A case of facial paralysis due to an impacted left lower wisdom tooth in a boy of 18 is reported by Marco.[16] The family doctor had diagnosed the condition as congenital, but there was a complete disappearance of the symptoms after the tooth had been removed. Moreover, the boy, who had previously been small and anæmic, gained in weight and height after the operation. Bercher and Houpert [17] had a female of 42 who suffered from neuralgia and complete facial paralysis. The pain ceased as soon as roots from the fractured left lower wisdom tooth were removed, but the paralysis did not completely disappear.

Hemiparalysis of the soft palate is an unusual complication; a case resulting from a carious right lower wisdom tooth is recorded by Kritchewsky.[18] After the removal of this tooth the palate regained its normal colour, appearance and reflex activity. The author thinks that the cause was

FIG. 7

probably reflex irritation. An exceptional case, referred to me by Dr. W. H. Coldwell, was that of a young woman with a buried and impacted mandibular third molar who experienced a sharp stab of neuralgic pain, sufficient to make her cry out, and thereafter the side of the jaw and the area of the lip and chin supplied by the mental bra..ch of the third division became numbed. The symptoms resembled the anæsthesia produced by a block novocain injection at the mandibular foramen. I removed the buried molar (fig. 7) under intratracheal gas-oxygen anæsthesia (Dr. I. W. Magill) and sensation, after passing through a stage of tingling, became normal within a week.

EPILEPSY AND OTHER NERVOUS PHENOMENA

Two cases of vertigo caused by impacted third molars are recorded by Anderson.[19] One was that of a woman of 21, and the other that of a man

FIG. 8

of 45, and in both cases the vertigo disappeared when the impacted teeth were removed. In both cases there was some evidence of infection. I myself had a male patient of 53 who suffered from head nystagmus which was immediately relieved when a buried and impacted right lower third molar,

lying close to the mandibular nerve, was removed (fig. 8). There was caries of the crown and sclerosis of the surrounding bone.

Epilepsy has been recorded by a number of writers, e.g. Tracy,[20] McGauley,[21] Loriot[22] and Lucas.[23] McGauley's case was that of a lad of 15 who had fits for two years; there was no family history of epilepsy. The attacks began with a trembling of the jaws and a dull pain in the left side of the face; the fits ceased on extraction of two impacted and imperfectly developed lower wisdom teeth. No further fits occurred during two years' observation. Lucas's patient, a girl of 17, had had no less than six cerebral decompressions, each of which had seemed to relieve her fits for a short time. Finally, however, four impacted wisdom teeth were found and removed, after which she had three very slight seizures within a week and after that (eight months before this report was made) was entirely free from them and able to live a normal life. A similar case is recorded by Carrea and Samenfo[24] where a female patient of 35 suffered from fits two to three times a week. All four buried wisdom teeth were revealed by X-rays, and the patient was entirely free from fits five years after their extraction. The teeth were removed one by one and the last fit occurred at the time of the third extraction. Mr. D. W. Earle (New Zealand) has sent me X-rays of a case reported by him[25] of a man of 23 who two years before had been passed fit for the police, but a year previously had started having epileptic fits which occurred about once a week for eleven months. All kinds of treatment had been tried, and he had been discharged from two hospitals as hopeless. His teeth were perfect except for a little caries on one lower molar, and also the absence of a lower left wisdom. X-rays showed the missing tooth badly impacted and pressing on the molar in front, which it had eroded. A few days after the extraction he had two slight fits, but thereafter was entirely free from them. Dr. Hildred Carlill[26] recorded the case of an epileptic woman of 32 who had five severe attacks in eight months. The two lower wisdoms and the left upper one were removed and without any other treatment the epilepsy was cured. In a case of Mr. R. V. Bradlaw's a married woman of 37 had had epileptic fits for ten years and complained of pains radiating down the right side of the jaw, and up into the ear. Nothing seemed to relieve this pain, which quite incapacitated the patient because it 'made her feel so ill.' X-rays showed a right lower third molar horizontally impacted, and the three lower molars on that side were extracted; since then she has had no more pain and the epileptiform attacks have been less severe.

HERPES AND SKIN ERUPTIONS

Mr. K. McAllister (Leicester) sent me notes of a woman of 25 with a patch of persistent herpes below the angle of the mouth on the right side. She sought dental aid because of severe inferior dental neuralgia on the same side. A buried wisdom tooth was removed, which relieved her of the neuralgia, and ten days later the herpes had cleared. Dr. Helen Boyle recalled

for me a case of recurrent herpes on the cheek which completely disappeared on the removal of an impacted molar on the same side. Dr. H. C. Semon and Mr. Keith Keele supplied me with the notes and X-ray films of a surgeon's daughter aged 30 who was similarly afflicted. Dr. Semon writes in his summary : ' Clear evidence of three attacks of herpes facialis ' between July 1931 and extraction of her wisdom tooth in the autumn of 1932 (fig. 9). The patient's X-rays showed only one wisdom tooth, the lower right, which was vertically placed but only partially erupted. The tooth had a long tapering root, grooved where it lay in contact with the mandibular canal. When last seen, January 1934, the patient had remained entirely free from symptoms. Major S. H. Woods supplied radiographs and notes of the case of an officer who experienced a sudden attack of herpetic neuralgia on the right side of

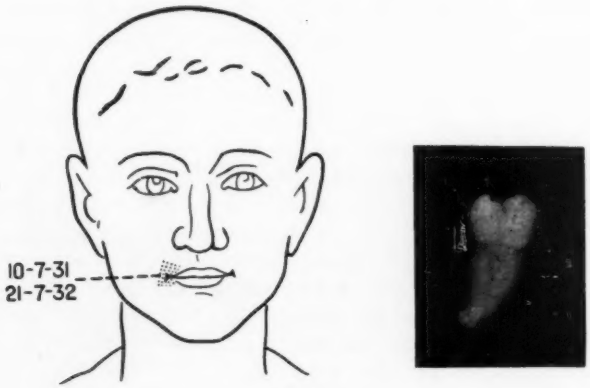


FIG. 9

the face. There was swelling of the right cheek with pyrexia, and herpetic eruption starting near the right ear and spreading to the chin. The herpes became intractable. The neuralgia was located to the second division of the trigeminus. An upper wisdom tooth buried high above the roots of the second molar was found by X-ray. The second molar, the buccal roots of which showed pressure absorption, was extracted, and the patient became free of both affections, the herpes beginning to subside in three days.

Herpes, as a postoperative complication following removal of an impacted third molar, was kindly reported to me by Mr. J. Edgley Curnock. The patient, a woman, complained of severe pain on the left side of the face and the tilted but partially erupted lower wisdom tooth on the same side was accordingly removed under nitrous oxide. The pain became more severe, and on the second day a typical vesicular eruption appeared from the temple to the chin with extensions to the inside of the auditory meatus and within

the vestibulum of the mouth (fig. 10). The patient's temperature rose to 102° and the illness ran the usual course of an attack of herpes.

These cases show an analogy with that of the daughter, aged 7½, of a medical colleague. This child has suffered regularly from a patch of herpes

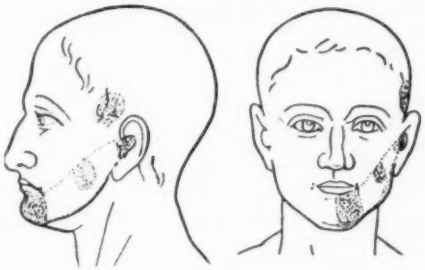


FIG. 10

on the chin every time she has been cutting either a deciduous or a permanent molar tooth. The patches last for about a fortnight and disappear when the tooth in question comes through. Less obvious are the subepidermal rashes which young men and women towards 20 often exhibit. The area of distribu-

FIG. 11

tion is over the part of the chin supplied by the mental branch (fig. 11), and is almost perpetual during the eruptive activity of the wisdom tooth.

BIBLIOGRAPHY

[1] MACPHEE, G. C., *Brit. Med. Jour.*, 1932, **2**, 1056.
[2] ANDRÉ, G., *L'Odontologie*, 1930, **68**, 190.
[3] BUCHANAN, J. C., *Dent. Cos.*, 1927, **69**, 805.

[4] JARZAB, J., *Dent. Cos.*, 1933, **75**, 98., abstr.
[5] MOREL, M., *Bull. des Chirurg. Dent.*, 1910, **13**, 163.
[6] PITTS, A. T., *Brit. Dent. Jour.*, 1929, **1**, 546.
[7] MAIN, L. R., *Jour. Amer. Dent. Assoc.*, 1933, **20**, 870.
[8] BUCKLEY, T. A., *Jour. Amer. Dent. Assoc.*, 1932, **19**, 2016.
[9] GIORELLI, G., *Ann. Clin. Odontioatr.*, 1931, **8**, 1231.
[10] LEBOURG, L., *Rev. de Stomat.*, 1933, **35**, 215.
[11] SCHEIWE, F., *Festschrift des zahnartzlich. Instituts der Univ. Greifswald*, 1926, 131.
[12] GRAMMEL, quoted by Scheiwe.
[13] TELLIER, J., and BEYSSAC, P., *Rev. de Stomat.*, 1930, **32**, 193.
[14] MUELLER, A. H., *Dent. Review*, 1917, **31**, 683.
[15] ROUVEIX, J., *Rev. de Stomat.*, 1924, **26**, 290.
[16] MARCO, B. B., *Amer. Med.*, 1918, **24**, 600.
[17] BERCHER, J., and HOUPERT, L., *Rev. de Stomat.*, 1929, **31**, 867.
[18] KRITCHEWSKY, B., *Rev. de Stomat.*, 1933, **35**, 211.
[19] ANDERSON, H. B., *Penns. Med. Jour.*, 1929, **32**, 497.
[20] TRACY, E. A., *Dent. Cos.*, 1927, **69**, 410.
[21] MCGAULEY, W., and MCGAULEY, F., *Jour. méd. Bourdeaux*, 1922 (Abstr. *Dent. Cos.*, 1922, **64**, 30, and *Inter. Jour. Orthodont.*, 1922, **8**, 249).
[23] LORIOT, M., *Bull. de Chirurg. Dent.*, 1910, **13**, 626.
[23] LUCAS, C. D., *Dent. Survey*, 1929, Dec.
[24] CARREA, U. and SAMENFO, L., *Rev. Med. Lat.-Amer.*, 1928, 8 ; *Semaine Dent.*, 1930, **12**, 1309.
[25] EARLE, D. W., *New Zealand Dent. Jour.*, 1933, **28**, 132.
[26] CARLILL, HILDRED, *Lancet*, 1933, **1**, 1005.

CRYSTAL-FORMATIONS IN THE SPINAL FLUID AND THEIR DIAGNOSTIC SIGNIFICANCE

By

K. ZEINER-HENRIKSEN, Oslo, Norway

SURVEY OF THE PHYSIOLOGICAL COMPOSITION OF THE SPINAL FLUID

The formation of crystals by the dehydration of spinal fluid is in close correlation with its chemical composition, which condition it is therefore necessary briefly to discuss.

On the whole, normal spinal fluid has a constant composition and, seen in comparison with the electrolytes, its content of organic ingredients is poor. Favourable conditions are accordingly present for the formation of crystals by dehydration of the fluid, and it was therefore to be expected that the crystals formed would give pictures of diagnostic value. It is well known that the crystal picture is dependent upon the extraneous conditions under which it is formed. Rapid dehydration gives small crystals, slow dehydration produces large crystals. A solution of a single pure crystalline substance will, by crystallization under certain conditions, yield a characteristic crystal-form. If several crystalloids are mixed together in the same solution, the crystallization will produce crystal aggregates. If, further, organic and colloidal substances are added, the crystal aggregates become very complicated. The laws governing these aggregate formations are still unrevealed.

The spinal fluid is clear and weakly alkaline, with *p*H about 7·5 and with specific gravity about 1007·6. It contains a few cells and a small part of colloidal substances in the form of protein, sugar and some other organic ingredients. It is thought that the colloidal substances and the cells originate from the perivascular lymph-ducts in the central nervous system. In proportion to the organic, inorganic substances are present in overwhelming amount. Of the inorganic salts, sodium chloride forms the principal part, but other salts of K, Na, Ca are also found.

Normal fluid has the following composition (Demme, *Die Liquor-diagnostik*, 1935, p. 51):—

	From	To	
Total protein . .	20	30	mgm. per cent.
Globulin . . .	2·5	9	,, ,,
Albumin . . .	15	25	,, ,,
Sugar . . .	45	75	,, ,,

	From	To		
Lactic acid . . .	8	15	mgm.	per cent.
Chlorides . . .	720	750	,,	,,
Amino acid . .	Up to	1	,,	,,
Urine substances . .	6	15	,,	,,
Urinic acid . . .	0·3	1·3	,,	,,
Creatinin . . .	1	1·5	,,	,,
Lecithin . . .	—	22 (—)	,,	,,
Phosphorus . . .	1·5	2·7	,,	,,
Potassium . . .	10·5	16·9	,,	,,
Sodium . . .	257	331	,,	,,
Calcium . . .	4·4	6·8	,,	,,
Ammonia . . .	0·096	0·097	,,	,,
Sulphur . . .	1·1	(?)	,,	,,
Magnesium . . .	1·02	1·3	,,	,,
*p*H	7·35	7·8		

The total quantity of fluid is calculated to be about 146 c.cm.; in old people, owing to atrophy of the nerve tissues, it may rise to double that amount.

Cerebrospinal fluid is thought to be of significance for the nutrition of the nervous system. Mestrezat designates it as 'serum mineral,' the chemical nature of which forms the optimal condition for the maintenance of the function of the nerve cells. Halliburton considers cerebrospinal fluid as the ideal physiological salt-solution for the maintenance of the osmotic equilibrium of the nerve-cells. Much doubt, however, still exists as to how far it governs directly the nutrition of the nerve-cells.

Conditions in respect of the colloids in this 'serum mineral' demand a close study. It is of interest to mention that after malaria treatment of general paralysis an increase of K and Mg is found, whereas there is a decrease of Ca values.

Under pathological conditions the factors for crystallization in the spinal fluid are altered, and it was thought that the shape of the crystals might afford diagnostic indications.

At the stage I have now attained and on the basis of the crystal-picture available, I am able to diagnose general paralysis.

PERSONAL EXPERIMENTS

The investigations, the result of which I submit in this work, were begun in 1932, demonstrated at the Psychiatric Clinic and before the Neurological Association in Oslo in 1933, and delivered as a lecture before the Medical Association, Oslo, in December, 1933.

The purpose of these investigations is to show that it is possible at the present stage of our knowledge to distinguish 'normal' spinal fluid from

typical paralysis fluid, and, further, that the crystal-formations change during malaria treatment and remission. In the present publication I show the pictures of normal fluid crystals alongside of paralysis fluid crystals in order to demonstrate the difference as distinctly as possible. It may at first prove difficult to classify these pictures, but gradually all that is typical in them will emerge clearly. My further plan is to investigate whether

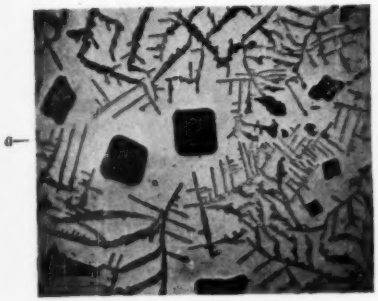


FIG. 1.—Normal.

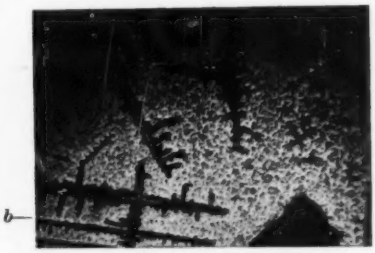


FIG. 2.—Normal.

FIG. 3.—Normal.

FIG. 4.—Normal.

other organic and 'functional' nervous diseases have crystal pictures possessing diagnostic value.

METHOD

With an ordinary pipette for blood testing measure 20 to 25 c.mm. spinal fluid, the drop is placed on a perfectly clean object glass, 2 to 3 drops individually after each other for the sake of control. The preparation is air-dried under a bell-glass at room temperature (about 19° C.). It does not greatly matter if the temperature is 2° to 3° above or below 19° C. The dried preparation is examined uncovered and under a slight magnification

(Zeiss objective a_1 or a_2 and medium-strong eyepiece). For investigation with dark field illumination the preparation is to be embedded in Canada balsam with glass cover.

DESCRIPTION OF THE CRYSTALS

The Normal Crystal Picture.—By normal spinal fluid is meant the fluid

FIG. 5.—Normal.

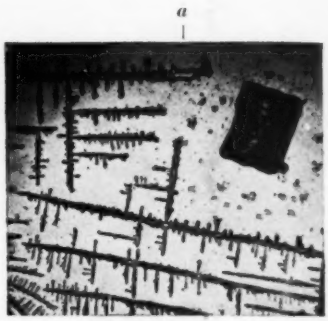


FIG. 6.—Normal.

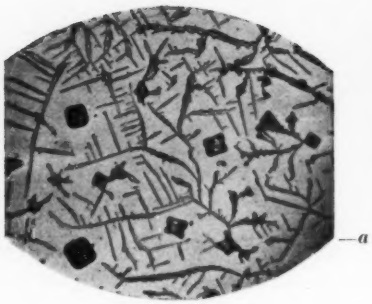


FIG. 7.—Normal.

FIG. 8.—Normal.

which gives normal reactions according to the usual clinical scheme of investigation and which comes from patients not suffering from clinically demonstrable nervous diseases or from other internal illnesses which may be thought to exercise an influence upon the composition of the spinal fluid. A normal crystal picture of such nature is seen in fig. 1, where part of the

dehydrated drop with border zone is given. There will be observed in the picture a large quadrilateral crystal-form (*a*), representing a pyramid-shaped regular sodium chloride crystal as is found in all normal pictures. In addition to these large and very frequently singly-lying crystals, formations of finer and coarser needles (*b*) are found. These are arranged in lines, and in most cases are geometrically ramified at right angles, as is apparent in figs. 1 to 4.

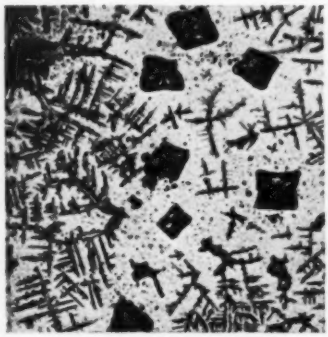


FIG. 9.—Normal.

FIG. 10.—Normal.

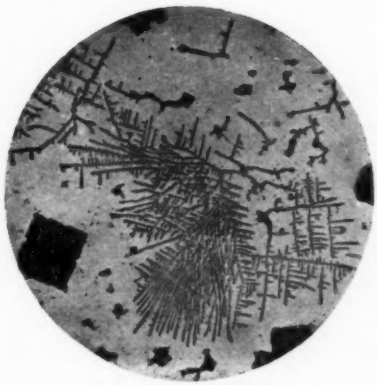


FIG. 11.—Normal.

A transition stage can be traced between these needle formations and the large pyramid-shaped crystals, as the latter by axial prolongation of one diagonal assume a spear or arrow-tip shape or dagger-like form, as in figs. 4a, 5a. Taking all the normal crystal pictures together (figs. 1 to 11), it may be observed that the large pyramid-shaped crystals lie isolated and are without ramifications, whereas the dagger and arrow-tip-shaped crystals usually have a needle-like prolongation of one or several of the diagonal

corner points (figs. 5a and 7a). These needle formations ramify further at right angles. At first it may seem difficult to systemize them, but it will be seen from a closer examination that ramification on the whole follows a right-angled construction. One is even able to see at some places that the

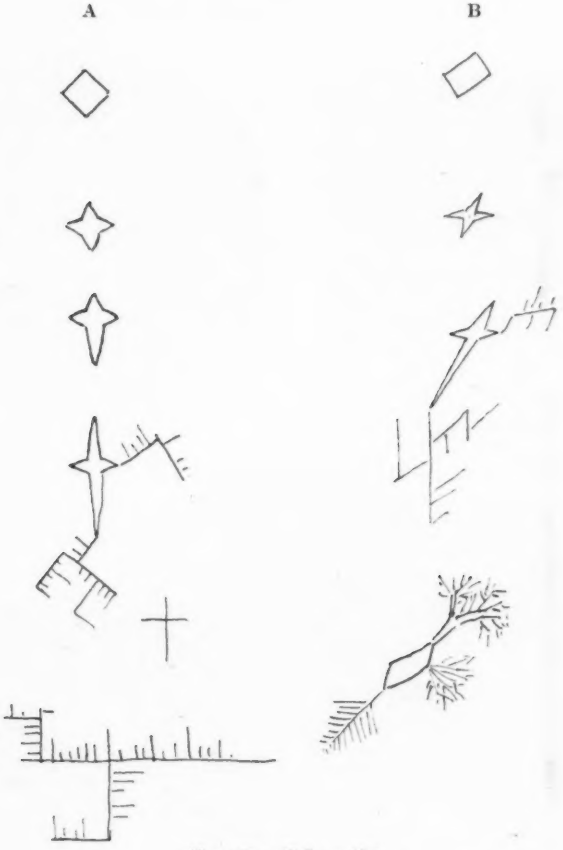


FIG. 12.—(Schematic).
A. Normal. B. Pathological.

needle ramification is slightly tapered and angular (figs. 7a, 8, 9, 10a, 11). In my opinion the angularly-tapered needle-formations provide a transition stage leading to the pathological forms.

I have schematically depicted in fig. 12 the variations of crystal formations in the normal and pathological spinal fluid picture.

The Crystal-Picture in the Spinal Fluid of General Paralysis.—The

characteristics of the crystal-picture in the spinal fluid during paralysis generalis are as follows :—

1. Varied forms of the large crystals. The regular pyramid-shaped crystals have disappeared, and instead are seen many that are star- or

FIG. 13.—General paralysis.

FIG. 14.—General paralysis.

FIG. 15.—General paralysis.

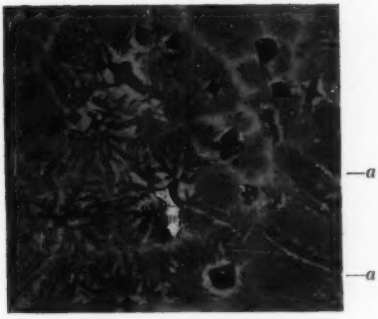


FIG. 16.—General paralysis.

dagger-shaped (figs. 16, 19), besides more amorphous forms (figs. 13 to 16), and, at times, disintegrated crystals which seem as if they have been torn apart (figs. 23a, 23b, 25a). Further, at several places we see hexagonal stars—like starfish—which always seem to indicate a pathological process (figs. 17, 19a, 26a).

2. Growing from the corners of the large crystals are ramifications of irregular needle formations tapering angularly, which may assume the shape of (*a*) an *oak tree* (figs. 13a, 14a); (*b*) a *bush* (figs. 15a, 16a, 19, 21, 27a); (*c*) a *fir tree* (fig. 23); and (*d*) *rosette forms* (figs. 14b, 15b, 17a).

FIG. 17.—General paralysis.

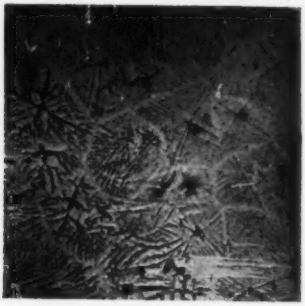


FIG. 18.—General paralysis (treated).

3. Between the various crystal aggregates is a structureless zone which appears to be of an amorphous nature and where the extreme delicate needle formations lose themselves (figs. 13 to 19, 21, 23, 27).

It is still too early to form any definite idea whether the pictures I have

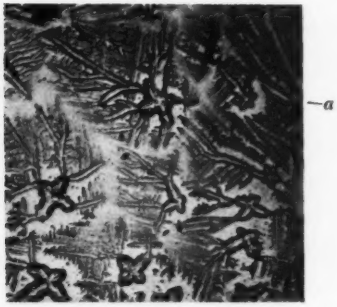


FIG. 19.—General paralysis (before malaria treatment).

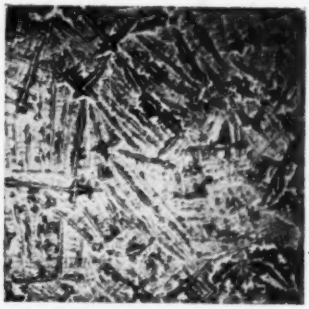


FIG. 20.—General paralysis (after malaria treatment : same patient as in Fig. 19).

described above are pathognomonic in respect of general paralysis, but they certainly seem of such a typical character that they will prove to be of diagnostic value.

During malaria treatment of paralysis the crystal picture changes. In the same manner as the fluid alters during malaria treatment, a change in

FIG. 21.—General paralysis (before malaria treatment).

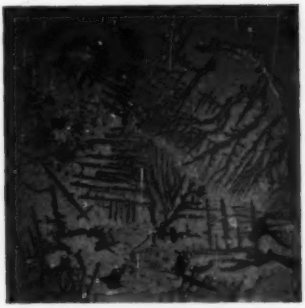


FIG. 22.—General paralysis (after malaria treatment: same patient as in Fig. 21).

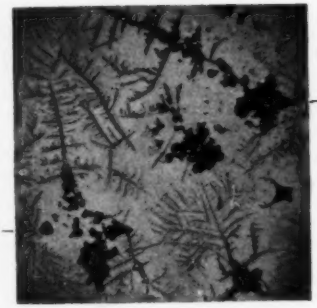


FIG. 23.—General paralysis (before malaria treatment).

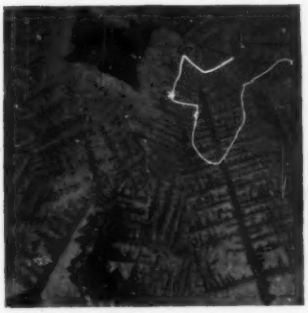


FIG. 24.—General paralysis (after malaria treatment: same patient as in Fig. 23).

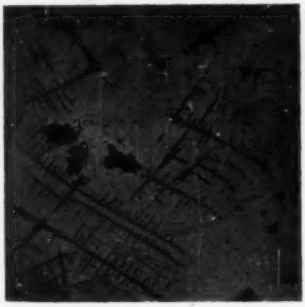


FIG. 25.—General paralysis (after malaria treatment).

FIG. 26.—General paralysis (after malaria treatment).

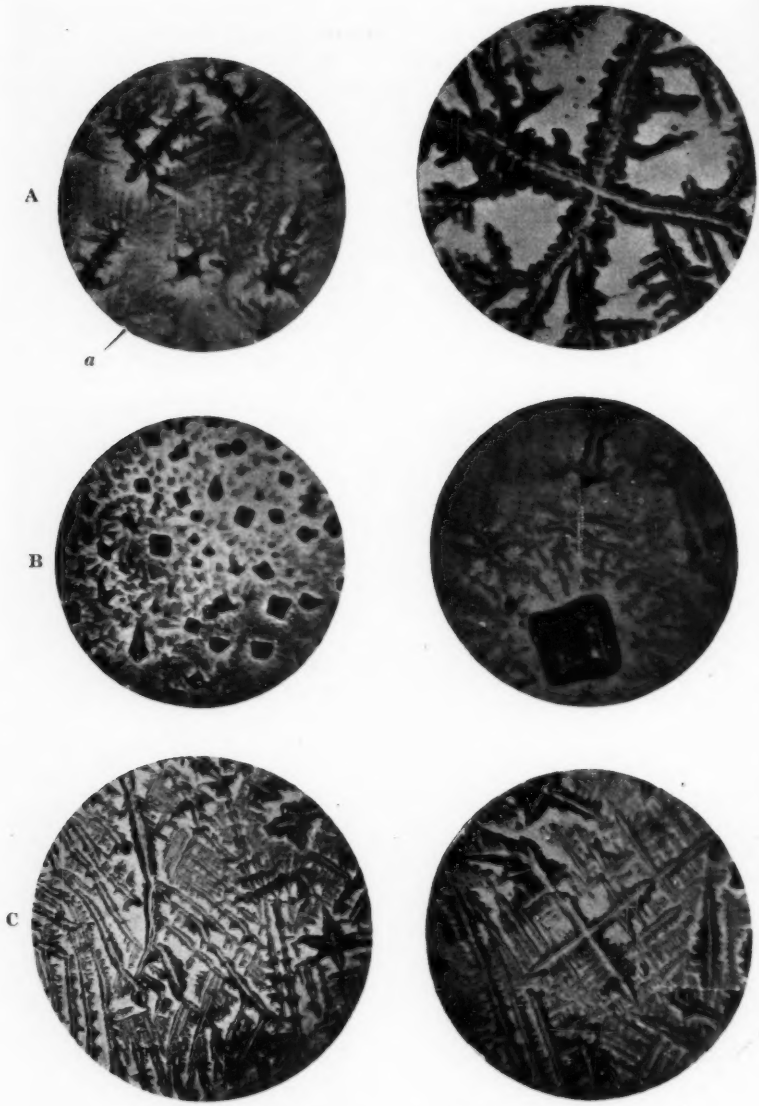


FIG. 27.—General paralysis.

A. Prior to successful malaria cure.
B. Immediately after.
C. Four months after.

the crystal picture is observed in a normal direction. The more complete the remission is, the more normal the crystal picture becomes. The needle-forms become simpler and the angles straight. It is very often seen that the crystal needles arrange themselves in straight, usually parallel rows, looking like spear-point upon spear-point (figs. 26, 27C). As an example of the influence of malaria treatment on crystal formations, reference is made to fig. 18 (mainly right-angled rosette shape), fig. 19 (prior to) and fig. 20 (after-treatment; same patient); the same for figs. 21 and 22, 23 and 24. Fig. 27 shows the crystal picture prior to, immediately after, and four months after, a successful cure. Fig. 26 shows a picture of the fluid taken for control a lengthy period after treatment, and fig. 28 depicts one taken from a patient eight years after a successful cure for malaria.

My material includes 322 cases with registered photographs. Of these, 66 are paralysis, the remainder being divided among other nervous diseases

FIG. 28.—General paralysis (eight years after a successful malaria cure).

such as tabes, latent lues, lues cerebrospinalis, psychopathic cases, schizophrenia, dementia, tumor cerebri, cramp attacks, peripheral nervous disease as well as milder forms of neurasthenia without any organic foundation and without demonstrable change in the spinal fluid. These forms of neurasthenia always show the picture I have presented as being the normal crystal picture, which agrees with the crystal picture in the case of patients not having any organic or functional nervous disease.

In addition to those photographs, I have observed the same number of preparations many times over. My experience is that the crystal picture of untreated general paralysis is so typical as to provide a secure foundation for the diagnosis.

The major part of this work has been carried out at the Psychiatric Clinic, Oslo, and I wish now to tender my warmest thanks to Professor Dr. Med. Ragnar Vogt, the Principal. Further, due to the kind consideration

of the principals concerned, I have been able to employ material at the Psychiatric Department of the Oslo Municipal Hospital at Ullevaal, the chief of which is Dr. Sæthre ; the Nervous Diseases Department of the State Hospital, Professor Dr. Med. Monrad Krohn as Principal ; and Section VIII of the Oslo Municipal Hospital at Ullevaal, with Dr. Med. Carl Müller as Head. I have also made use of private cases of my own.

MENINGEAL LIPOMAS IN THE FORAMEN MAGNUM

By

WALTER MISCH, London

Lipomas rarely develop in the meninges. Within the skull the favourite site of the lipomas is the dorsal surface of the corpus callosum ; the region of the tuber cinereum and the midbrain seem to be frequent sites, although much less so than the corpus callosum. Sometimes they are associated with malformations of the brain, especially with defects of the corpus callosum. Most of the lipomas in the skull do not cause symptoms and are found incidentally at necropsy (Bailey).

About their origin there are many theories : (*a*) that they arise from lipoid cells already present in the pia mater ; (*b*) that they arise by fatty transformation of the connective tissue ; (*c*) that they arise by differentiation of the pial cells towards an embryonic form, with a subsequent metaplasia into fat ; (*d*) that they arise from embryonal remnants (Verga).

The last lists of lipomas found in the central nervous system are in the papers of v. Sury and of Verga, which is a kind of monograph on the lipomas of the pia mater. Large lipomas at the base of the brain with distinct symptoms and signs have been described (Hirtz, Klob, Shaw). But most of these tumours did not cause any symptoms, even when they were situated near the foramen magnum. Only a few lipomas have been described in this area ; and their clinical picture has been ignored or the description has been brief.

The first was described by Cruveilhier (1856, quoted by Bostroem and others) on the left side of the medulla in the olive beneath the arachnoid ; although it was of the size of a pea it did not produce any symptoms. In a case of Leyden (a female, aged 28 years) a lipoma on the foramen magnum, bulging towards the pons and medulla, caused symptoms of vertigo, hemiparesis of the left side with pains in the left limbs, disturbances of speech and swallowing ; in this case the right sixth and tenth nerves were found atrophied and the medulla softened.

The other few cases described in this region were either enchondromata (Bostroem, Bälz) or not well-defined tumours (Gowers, Wätzoldt).

The two lipomas of the foramen magnum to be reported here * seem to be the first ones with a long-standing history and with repeated clinical

* Seen in the Neuköllner Krankenhaus in Berlin in 1928 and 1931.

examinations, one case being extrameningeal, the other intrameningeal. During life the exact diagnosis could not be made out, although in the second case it was suspected because of its resemblance to the first one.

PERSONAL CASES

Case I.—S.P., age 14. Admitted July 4, 1928.

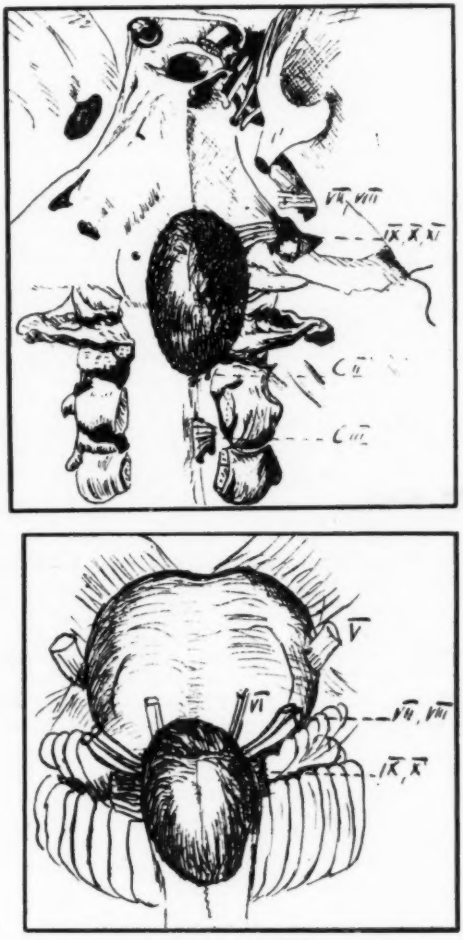
History.—About one and a half years ago (end of 1926), fall on her head; not unconscious, no sequelæ whatever, apart from a slight headache for a short time. Sixteen months ago (March, 1927), severe frontal headache, present all day and night, with vomiting, and increasing gradually. Twelve months ago (July, 1927), unsteadi-

CASE I.—Favourite attitude for better breathing.

ness of gait. Ten months ago, double vision in the form of a horizontal diplopia. Later, neck rigidity. A few weeks later, vertigo, difficulty in swallowing; dysarthria; paræsthesiæ third and fourth fingers of right hand. Again, a few weeks later, paræsthesiæ of right arm, retention of urine, sensation of a node in rectum. For about six months, increasing speech trouble, signs of recurrent paralysis.

Neurological Examination, December, 1927 (Prof. A. Simons).—Discs normal. Pupils equal in size and reacting normally to light and convergence. Eye movements normal. Nystagmus, slow to the right side, less marked to the left. Corneal reflexes absent on both sides. Depression of sensibility both for light touch and for pin-prick all over the trigeminal area on both sides; hyperæsthesia for pain-stimuli round the mouth. No facial weakness. Eighth nerve normal in both portions. Right palatal paresis. Phonation defective. Upper extremities: hypotonic, but no motor paresis; reflexes normal; dysmetria left hand. Abdominal reflexes doubtful. Lower extremities

hypotonic in passive movements. Both knee- and ankle-jerks present and equal, brisk, no true spastic signs. No ataxia. Hemianæsthesia for pain-stimuli right side. Romberg's sign markedly positive ; constant tendency to fall to the left side. Constant deviation to the left in walking, with trunk bent to the left. In the sitting



Case I.—Extradural lipoma.

position slight deviation of trunk to the right and backwards. Fixed deviation of head towards left shoulder. Nasal articulation. No aphasia, no apraxia.

Neurological Re-examination, July, 1928.—Left pupil larger than right. Discs normal. Corneal reflexes absent. Eye movements full, no diplopia. Nystagmus to the right, sustained and slow ; to a lesser degree nystagmus to the left. Left

facial weakness of peripheral type, more marked in upper part of face. Early muscular wasting in left half of tongue, some fibrillary twitchings. Paresis of right palate. Dysarthric speech, difficulty in swallowing. Anæsthesia for temperature both trigeminal areas, with sparing of a zone round the mouth. Upper limbs : flaccid paralysis of right arm, with considerable wasting of hand-muscles and muscles of forearm ; early muscular wasting of left hand. Marked ataxia ; adiadochokinesis in right arm. Depression of deep sensation and sense of temperature in right hand. Abdominal reflexes absent. Bladder and rectal tenesmus. Lower limbs : paraparesis with normal tendon reflexes, but extensor response both sides. Cervical opisthotonus, Kernig's and Brudzinski's signs positive. Lumbar puncture produced only a few drops of clear fluid ; no pathological findings on examination.

Progress Notes.—During the following weeks increase of occipital headache and vomiting. Increasing motor paresis of left hand which became gradually almost paralysed. Increasing dysarthria. Marked dyspnœa. In the end marked Cheyne-Stokes breathing.

Death, September, 1928, from respiratory cessation.

Post-mortem.—Extradural tumour, 2·5 cm. wide, 4 cm. long, 1 cm. thick, extending across the whole width of the ventral wall of the foramen magnum (clivus) ; originating from the lower end of the spheno-occipital region, the lower part of which it covers, and prolonged downwards to the middle of the axis. The medulla is compressed in its upper part, but microscopically free ; the right spinal accessory nerve is displaced, but not invaded by the tumour ; both hypoglossal nerves are compressed.

Microscopical examination : Lipoma.

Case II.—E.N., age 34. Admitted April 22, 1931, with pneumonia.

Previous History.—1912, strumectomy for tracheal compression. Was always rather emotional and irritable ; palpitation, difficulty in breathing, especially when climbing.

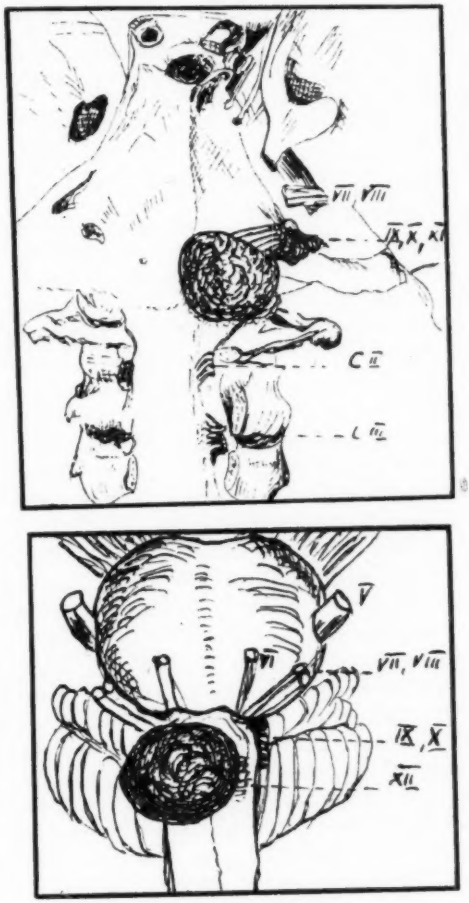
1925, fall from a ladder. The patient was unable for a short time to turn her head.

1927.—Start of *present illness :* Headache all over her head, gradually increasing. First only on back of the head, especially when laughing ; then headache in forehead and top of head. At the same time she put on weight markedly ; further enlargement of thyroid gland. Since January, 1929 (two years ago), increasing vertiginous attacks, some months later making her unable to walk unsupported. Since March, 1929, a ' heavy feeling ' inside tongue, stiffness of legs, paræsthesiæ in hands and face. One and a half years ago (October, 1929) : *First observation in hospital :* Very severe headache, occasionally combined with vomiting ; persistent giddiness, speech difficulty, cold sensation in face ; pins and needles in hands ; heavy feeling in all limbs ; double vision to both sides ; difficulty in swallowing ; retention of urine.

During the following year : difficulties of speech and swallowing, as well as paresis of legs and arms, bedridden in the end ; incontinence of fæces and urine.

Examination in October, 1929.—Adiposity, struma, tachycardia. Fundi and pupils normal. Suggestion of horizontal nystagmus to the left. Speech dysarthric and somewhat hoarse. Corneal reflexes absent both sides ; fifth otherwise normal. Jaw reflex exaggerated. Reflex of palate absent. Muscular wasting of tongue muscles both sides, right side more marked and with definite fibrillary twitchings. Slight deviation of tongue to the right. R.D. in right half of tongue. Abdominal reflexes absent. Tendon reflexes of lower limbs exaggerated ; knee-jerk brisker right side. Flexion in hip-joint right side weaker than left. Coordination of arms and legs slightly impaired. Marked static ataxia. Romberg's test with constant falling to the right. Special examination showed no pathological finding of the vocal cords and of the vestibular apparatus. Lumbar puncture : slight increase of globulin.

Re-examination on admission to hospital on April 22, 1931.—Marked spastic tetraparesis with exaggerated tendon reflexes. Babinski left side. Sitting, the patient is unable to keep her head in position. Headache in back of head in region of upper cervical spine. Rotatory quick nystagmus to all directions. Marked dysarthria.



CASE II.—Intradural lipoma.

Paralysis of tongue with atrophy both sides. Paralysis of soft palate with total paresis of swallowing. Sensory depression over both cheeks and round mouth of segmental distribution and perfectly symmetrical. Corneal reflex absent left side, right side only depressed. Otherwise no sensory finding. Recurrent paralysis. Fundi normal.

Death from bronchopneumonia on April 25, 1931.

Post-mortem.—Intradural tumour, 2·5 cm. wide, 1·7 cm. long, 2·2 cm. thick, consisting of several small lobules, firm and elastic, yellowish and transparent, with

branching vessels on the surface. It fills the greater part of the right side of the foramen magnum, at its widest part reaching only a short distance to the left of the midline. The tumour is a little obliquely placed and lying from left above to right below between the sella turcica and the foramen magnum (clivus), so that above it reaches to the level of the upper margin of the jugular foramen and below to a little below the atlanto-occipital articulation, on the right almost to the jugular foramen (2·0 cm. wide), on the left to about 0·5 cm. over the midline. The medulla is much displaced to the left, and from the beginning of the pons downwards it is flattened in its right half. The cerebellum also is depressed, chiefly on the right and a little to the left of the midline. Both hypoglossal nerves are compressed.

Microscopical examination : Lipoma.

DISCUSSION

Both cases began with headache either occipital or frontal, vertigo and unsteadiness of gait.

In the first case, where an extradural lipoma covered the ventral side of the whole medulla and parts of the lower pons and of the upper cervical cord, there were first horizontal diplopia and later neck rigidity, followed by vertigo, symptoms of bulbar paralysis (dysarthria, difficulty in swallowing), bladder disturbances, paræsthesiæ in the right fingers and arm as well as signs of cerebellar disturbances, trigeminal hypæsthesia and right hemianæsthesia. Finally came paraplegia with atrophy of the hand muscles, atrophy of the left tongue, paresis of the left seventh, disturbances of the fifth, and Horner's syndrome on the right. Death occurred from respiratory paralysis 18 months after the onset of the condition.

In the second case, where a thick intradural lipoma covered the right ventral side of the upper part of the depressed and displaced medulla, there was a rapid appearance of cerebellar symptoms (vertigo, gait disturbances), followed by slow development of paresis of the lower limbs and paræsthesiæ in hands and face, as well as atrophy of the tongue (right more than left) with dysarthria and absence of corneal reflexes. Finally came increasing cerebellar and bulbar signs and development of tetraparesis with bladder and rectum incontinence. Death occurred from bronchopneumonia four years after the onset of the disease.

Comparing the symptoms and signs of these cases with those of other tumours of this region, there is no characteristic difference as regards the great variability in site of the extrabulbar tumours. Corresponding to the more mesial site of the lipomas the developing paresis seems to be bilateral from the beginning.

Headache and cerebellar disturbances were the first symptoms. Papill-œdema was not found.

REFERENCES

BAILEY, *Intracranial Tumours*, 1933, 354.
BÄLZ, *Arch. f. Kinderheilk.*, 1872, **13**.
BOSTRÖM, *Centralbl. f. allg. Pathol.*, 1897, **8**, 1.

CRUVEILHIER, *Traité d'anat. pathol. générale*, 1856, **3**, 312.
GOWERS and WÄTZOLDT. Quoted by Lewandowsky, *Handbuch d. Neurologie*, **3**, 615.
HIRTZ, *Bull. de la soc. d'anat. de Paris*, 1875, 254.
KLOB, *Zeits. d. k. k. Gesellsch. d. Aerzte zu Wien*, 1859, 673.
v. LEYDEN, *Klinik d. Rückenmarkskrankheiten*, **2**, 155.
v. SURY, *Frankf. Zeitschr. f. Pathol.*, 1907, **1**, 485.
SHAW, *Brit. Med. Journ.*, 1896, 1828.
VERGA, P., *Tumori*, 1929, **3**, 321.

A CASE OF RECURRENT ATTACKS OF PROLONGED SLEEP *

By

M. S. JONES, Edinburgh

SYMPTOMS

1. Attacks of prolonged sleep, lasting from one to six days.
2. Cataplectic attacks, fainting attacks and short attacks of sleep, lasting usually five minutes.
3. Fugues, somnambulisms, and other dissociative phenomena.
4. Vomiting.
5. Epistaxis.

History.—The following account was given by patient's mother. The patient was born in Edinburgh 22 years ago. It was a difficult labour, forceps being used, and there was some doubt whether the child would live. When she was one year old, the family removed to China and remained there for twelve years.

The father was a marine engineer on a Chinese coaster and, because of the nature of his work, was seldom at home. Life in the East proved difficult. At times they were boycotted, and sometimes without food. Fighting was constantly going on, and patient's attendance at school was necessarily irregular; however, these events do not appear to have caused her any particular anxiety and her memories of the country itself are of the pleasantest.

In childhood patient was not subject to any neurotic traits, such as stammering, nail-biting, bed-wetting, etc., but she did, on numerous occasions, walk in her sleep, and the mother recalls one occasion on which she unbolted the door and was discovered in the garden. She was on intimate terms with her mother and confided freely in her. Her father she knew less well, mainly because of his long absences when at sea, but she had a deep affection for him. She was an imaginative child, impressionable, thoughtful, but friendly and sociable.

When patient was aged 10, her mother had a second confinement. Three years later the mother and her two children returned to this country for a holiday. While in this country, news reached them that the father had died suddenly at sea. The man who was looking after their affairs proved to be unreliable and appropriated most of their possessions. The family were left almost penniless, and the mother, in order to earn a livelihood, invested such money as she had in a hairdressing business, which she herself managed. Patient was sent to school, where she found that she was much behind the standard expected for one of her age, but by hard work she soon made good the deficiency, and, in fact, took a high place in her class. She left school at the age of 16 having obtained her Leaving Certificate and commenced work in a large

* From the Royal Edinburgh Hospital for Mental and Nervous Disorders.

warehouse. Since that time she has had poor health and has had several fairly prolonged absences from her employment.

The state of affairs at home was unhappy, mainly because the mother became acquainted with a man in the hairdressing business whom she took into partnership. The mother states that she married this man six years ago, and, although they have never lived together, he has frequently visited her house at nights in a state of intoxication and has caused a great deal of trouble. Moreover, his craving for drink led to his appropriating all the available cash, and it was not very long before he had ruined the business. The mother states that the patient had a certain influence over this man which she utilized to the full in the hope of protecting her mother from any unpleasantness.

Previous Health.—Patient had typhoid when nine, malaria on numerous occasions, dysentery at 11, measles at 12. Since the age of 16 she had vomited practically every morning up to the time she was admitted to hospital, aged 21. At the same time also fainting attacks started and have been present off and on ever since. The menarche occurred at the age of 17. Since then she has been irregular and has been troubled with dysmenorrhœa. At the age of 18 she had an attack of jaundice and was ill for two or three months at that time. Three weeks after the onset of jaundice she had repeated hæmorrhages from the mouth and nose and became extremely weak. A right-sided hemiplegia slowly developed. For two months she was unable to walk unaided out of the room because of the weakness of her right leg. The right arm was also affected. However, patient's doctor has no note of this central involvement, but states that the jaundice itself lasted some five weeks.

When patient was aged 20, following a long history of abdominal pain, she was diagnosed as suffering from chronic appendicitis, and on operation an inflamed retrocæcal appendix was found. The appendicectomy did not improve her general health, and three months later she was admitted to the Royal Infirmary, Edinburgh. A report was received from Dr. J. D. Comrie, in whose ward patient was from October 4 to 29, 1932. She was admitted complaining of vomiting, pain in the stomach and fainting turns. The vomiting ceased soon after admission. X-ray examination was inconclusive; there was some tenderness over the duodenal region, but no ulcer crater was seen on X-ray. The benzidine test of the vomit and stools was negative. She had a sleep attack which lasted 36 hours, during which there was no response to painful stimuli. She was discharged 'improved' as a case of hysteria.

Eventually, in February, 1933, she was admitted to the Jordanburn Nerve Hospital.

Physical State.—Physical examination on admission, apart from the neurological findings, showed nothing definite. She was of the slightly-built, asthenic type. The blood picture was within normal limits. Fractional test meal gave normal figures and benzidine test of the stools was negative.

Sleep Attacks.—From the patient's initial attack of sleep in October, 1932, till the time of her discharge from hospital in November, 1934, there were 12 attacks of sleep lasting anything from 24 hours to six days.

These attacks present a constant picture. There is a preliminary period of malaise, sharp stabbing pain on top of the head, a feeling of fullness in the head, nausea, occasional vomiting, a feeling of constriction in the chest, salivation, occasional sweating. The feeling of fullness in the head is a constant feature. Frequently there is an epistaxis. If this is profuse, there is a marked feeling of relief and the onset of sleep is prevented.

Patient then sinks into a state of sleep, the depth of which varies considerably, from a state of mere drowsiness and muscular weakness to a deep sleep. In the former, patient, though conscious of everything going on around her, is unable to make the

slightest movement, and appears to be asleep. If an attempt is made to rouse her she can recover control of her musculature. In the latter, the corneal reflex is absent and a plantar extensor response is obtained, with sometimes even a crossed response; repeated stimulation produces irradiation of the stimulus, and a flexor response of both limbs. She is entirely insensitive to pain lumbar puncture producing no response. Tendon reflexes are present. The pupils vary, usually being contracted, but reacting to light and to loud noises. The pulse is usually about 60 to the minute, respiration about 16 to the minute and blood pressure 90/60. Patient may rouse sufficiently during these sleep attacks to take fluids, and attend to her bodily needs. She is never incontinent, but she has no recollection afterwards of these almost automatic acts.

On rousing, she feels extremely unwell. There is marked fatigue and weakness, which persists for 24 to 48 hours. Dimness of vision and diplopia are present. The headache, constriction in the chest, nausea, salivation, etc., which are experienced at the beginning of the attack are still present, but the sensation of fullness in the head is absent. Vomiting frequently occurs. She has no idea as to the duration of her sleep. The eyes are frequently suffused and red. Frequently 24 to 48 hours elapse before patient is able to take any solid food or feels free from the symptoms already noted. It is interesting to note that on two separate occasions the temperature rose to 99·5° F., and subsided to a subnormal level again within eight hours.

It appeared desirable to investigate this case from three different angles: the neurological, the biochemical and the psychological.

Neurological State.—On examining the nervous system on admission, it was found that there was a complete right-sided hemianæsthesia with lack of discrimination and dullness of sensation on the right side of the whole body, including the face. Tendon reflexes were equal and exaggerated on both sides, a flexor plantar response was obtained, abdominal reflex was present. The grip was stronger on the left side than the right and there appeared to be some loss of power in the right leg. The pupils were equal, regular, and reacted to light and accommodation. There was, on rough testing, a concentric diminution of both fields of vision. The pharyngeal and palatal reflexes were absent, as was also the corneal reflex. The optic discs showed no evidence of papillœdema or other abnormal state.

X-ray of the skull showed an unusual appearance, probably developmental in origin; the ridge on the inner surface of the skull corresponding to the attachments of the longitudinal sinus and falx was deviated from left to right in the occipital region. Otherwise the X-ray was negative, and there was no indication of increased intracranial pressure. It was found on subsequent examinations that the degree of anæsthesia varied in different regions. It was most marked in the limbs. For example, testing with a sharp point from fingers to shoulder on the right side, no stimulus was felt; from shoulder to mid-line the stimulus was felt as blunt; and from mid-line to the left hand it was felt as sharp. Degrees of temperature were not appreciated on the right arm. A similar state of affairs was present on the right leg as high as the knee, but above that discrimination was merely blunted. This was the case also on the right side of the body and face. The actual depth of the anæsthesia varied, however, on separate occasions, it being possible on one occasion to draw blood by pricking without causing pain, while on a subsequent occasion the same area might be sensitive. Sensations of pain, light touch and temperature were absent from the most anæsthetic areas, but pressure sensation and muscle and joint sense were nowhere absent.

On one occasion patient experienced a tingling sensation which involved the left hand, arm, left side of her face, tongue, and finally her throat. Her tongue felt large and she had difficulty in speaking. When the sensation reached her throat, she felt that she was choking and actually lost consciousness for a minute or two. On being examined shortly afterwards, her left arm and left side of her face were

partially anæsthetic, while the sensation of the right side of her body appeared to be normal. The following day anæsthesia had returned to the right side. Further, when first examined, patient answered 'yes' when touched on the sound side and 'no' when touched on the anæsthetic side.

On one or two occasions patient experienced a tingling sensation, starting in the right hand and progressively involving the arm and the right side of the face, the parts at first feeling cold and numb. There was an initial blanching followed by a blue discolouration. These attacks lasted from 10 to 30 minutes.

There have been various phenomena of partial or complete unconsciousness, which started with the syncopal attacks some seven years ago. The syncopal attacks had a gradual onset, with weakness, dizziness and loss of consciousness, and were presumably due to some vasomotor instability; but sometimes consciousness was lost without any warning, 'the ground suddenly coming up to meet' the patient. Such attacks cannot with certainty be differentiated from petit mal, especially as on one or two occasions patient reports that she went to sleep leaning against a wall. The absence of an aura, the lack of rigidity or stereotyped movements, and the variability of the attacks, however, make this unlikely. Neither of these attacks represents a vasovagal type as described by Gowers. Consciousness was definitely lost and was not affected by position.

Since the initial attack of prolonged sleep there have been occasional bouts of sleep lasting five to ten minutes, sometimes accompanied by the usual prodromata of a prolonged sleep attack, but usually coming on without any warning. These are differentiated from the attacks resembling petit mal simply by the feeling of drowsiness which invariably precedes and follows them, and by the fact that patient can be roused.

Finally, without any warning, patient has had sudden attacks of tonelessness. Emotional factors may produce such an attack, but occasionally no factor can be discovered. Patient falls to the ground and is incapable of any movement for five to ten minutes. These cataplectic seizures have occurred on about twelve occasions. They are never brought on by laughing.

During the periods of prolonged sleep there has recently been a tendency to the development of a cataplectic-like state at the beginning of the sleep attack, when patient feels that she could be wakened if she were shaken. This actually has been successful on several occasions. At other times this state has been brought on during sleep by patient having a recurrent dream, which is always accompanied by a feeling of dread. For instance, on one occasion patient went to sleep suddenly. She had complained of pain in the vertex of her head, constriction in her chest, etc. 'I was never really asleep—more drowsy. I realized what was happening in the ward almost all the time, but simply could not move or make a sound. Then I seemed to be on the side of that hill again. The fog was forcing me down and I felt terribly afraid. It seemed to be the end, that this time I was utterly lost, and there was no way out of it at all.' In spite of the dream, she could hear people talking in the ward and felt a longing to get in touch with them. The pain in her head became so intense that she screamed. There was a flash of light through the fog and she remembers nothing else till she woke up, bathed in perspiration and terrified. 'I felt as though I had had a terrible struggle and was quite limp. I felt that if I had not struggled against these two things I would have had no pain and just passed away.' Actually patient did scream, and tore her hair in apparent agony. She fell out of bed, and it was later noticed that she had been biting her lips.

Thus we have various phenomena, ranging from a transitory weakness without actual falling, through various degrees of unconsciousness to prolonged sleep.

A striking aspect of the case has been the predominantly vagal nature of many

of the symptoms associated with the sleep attacks. Patient has invariably experienced a feeling of nausea with salivation and occasional sickness, and a feeling of constriction in her chest, producing a sensation of suffocation. These symptoms were still present when patient awakened. There has been ample evidence of vasomotor instability, and the feeling of fullness in the head which is a constant prodromal symptom is one indication of this. A peculiar vivid purplish discolouration is sometimes present around the eyes, spreading beyond the lids. The eyes themselves at such times are frequently suffused, and we must suppose a marked engorgement of the ophthalmic veins to explain these signs. The pupils, during sleep attacks, do not present a constant picture, but they are never markedly contracted. The blood pressure is fairly low, 90/60, and the pulse about 60.

Biochemistry.—Careful records have been kept of the biochemistry of this case during sleep attacks and also at normal times. They indicate a tendency towards acidosis and probably ketosis, since the ammonia coefficient of the urine, over a period of approximately two months, was consistently raised (5 to 16). The phosphate excretion remained at the normal figure, while all other excretions were greatly reduced. This reduction, however, is explicable by the fact that the basal metabolic rate was low (average − 20 per cent.), and food intake has always been small. Both in the sleep states and in the normal the respiratory quotient was about 0·72, such a figure suggesting some abnormality in the general metabolism, possibly due to carbohydrate lack.

In the sleep state appreciable quantities of acetone bodies were excreted, without, however, any apparent relation between the length of sleep and the amount excreted; for example, in an 18 hours' sleep + + + + of acetone, in 72 hours' sleep + + (28 mgm. per cent.), in 36 hours + + (27 mgm. per cent.).

The determinations of the CO_2 combining power gave consistent results throughout (50 to 75 volumes per cent.). No distinction was apparent between the sleep and normal states. This indicates, when taken in conjunction with the urinary findings, a satisfactory ability to combat acidosis.

An attempt was made to discover the nature of the tendency to acidosis. The inorganic phosphate contained in the blood was investigated, but was found to be normal. No acetone bodies could be found in the blood drawn off during a state of sleep, but a high lactic acid content (60 to 107 mgm. per cent.) was found in the blood, both in sleep attacks and in the normal state. The most striking feature of the blood chemistry is the persistently low cholesterol content (70 to 105 mgm. per cent.). This finding bears an interesting relationship to results obtained from a case of typical narcolepsy, with short diurnal attacks of sleep and cataplexy. This case has normally a high cholesterol content (200 mgm. per cent.), while in both sleep and cataplectic states the value falls to below 100 mgm. per cent.

It is interesting that in the case under observation the cholesterol content rose as the frequency and intensity of the attacks decreased. Glucose tolerance tests performed during a sleep state and when awake gave normal curves, and further, the fasting level was the same in both cases. In the already mentioned case of typical narcolepsy the fasting level of the sleep state was lower than when awake.

These findings indicate a tendency to acidosis and ketosis, but do not, however, give an indication as to the cause of the sleep attacks. The cholesterol finding is interesting. According to Duncan,[1] the blood cholesterol is lowered in states of heightened emotion and there is accompanying increase in the basal metabolic rate; however, this case suggests much more a state of emotional inertia and there is a diminished metabolic rate.

Psychology.—It is necessary to condense the large amount of material which has been obtainable by free association and by analysis of the patient's dreams.

Unfortunately much of the material recalled has been of such a nature that it has been impossible to obtain confirmation of it.

Patient believes her mother to have been unfaithful to her father while still resident in China. She maintains that she was present on numerous occasions while intercourse took place between her mother and her father's best friend. The father's prolonged absence at sea favoured such a liaison.

Somnambulisms were frequent at this early age and would indicate that there was a certain amount of conflict going on in the patient's mind. She recalls being greatly upset by her mother's unfaithfulness, the more so as she was constantly in her company and to a large extent idolized her.

Patient believes her younger sister to be illegitimate and states that her suspicions were confirmed when, after her father's death, her mother periodically received money from China, presumably for the upkeep of her younger sister. She maintains, further, that her mother never married her partner in the hairdressing business; that she has confirmed this by perusing the official register, and that, therefore, her youngest sister is also illegitimate. She believes that her so-called 'step-father' and herself are the only two who really know the truth behind her mother's love affairs, and, in order to hide the truth from the world, she is forced to assume a rôle of complete ignorance.

There seems to be no doubt that her insomnia originated shortly after the age of 13 when she returned to this country. She maintains that she formed the habit of lying awake at nights in order to protect her mother if necessary from the advances of her drunken lover.

The patient left school in June, 1928. The vomiting and fainting attacks started about that time. The dates indicate that the mother was about three months' pregnant and, as patient was already quite familiar with the accompanying symptoms, it seems almost certain that her suspicions were aroused. In any case it is certain that patient was troubled with morning sickness from that time.

Between the ages of 16 and 20, patient's life was no happier. The unannounced, nocturnal visits of her mother's lover continued, and at times it was necessary for the mother and daughter to seek refuge in the middle of the night at the grandmother's house. Later the grandmother came to live with the family, and was constantly finding fault and complaining about trivialities. An aunt who lived nearby, by her quarrelsome behaviour, added to the general disharmony. The relatives, who imagined that patient's mother was married, could never understand why she would not get a separation.

When patient was 19 she became attached to a medical student. It was her first serious love affair and lasted 18 months. They were not actually engaged to be married, but there was a mutual understanding. The romance, however, ended suddenly. The young man had asked patient to go to a party. She did not feel well enough to accompany him and he promised not to go without her. However, he did not keep his promise, and at the party he proceeded to get drunk. He had intercourse with a girl whom he barely knew and later learned that she was pregnant. He felt it his duty to marry the girl, but the couple were unhappy together. Patient feels certain that she would have been happy living with this man, and this misfortune merely tended to confirm her distrust in humanity. Her friendship with the young man ended in November, 1932.

The mother confirms the fact that the unhappy domestic situation, together with patient's poor general health and her disappointment in love, had combined to make the situation an intensely unpleasant one. Patient herself maintains that, prior to being admitted to the Edinburgh Royal Infirmary in October, 1932, she frequently contemplated suicide and prayed fervently for death.

Three months elapsed from the time of her discharge from the Royal Infirmary

till the time of her admission to the Jordanburn Hospital, and during that time she had several attacks of prolonged sleep.

DISCUSSION

At first it was considered that there was some organic change, encephalitic or neoplastic in origin, situated in the brainstem, to explain the various symptoms occurring in this case. The attacks of sleep, the vasomotor disturbances and the metabolic upset might all have been explained on this basis. However, the variability of the anæsthesia, the presence of the 'Yes-No' phenomenon, the absent palatal, pharyngeal and corneal reflexes, the absence of any evidence of increased intracranial pressure, the concentric diminution of the fields of vision, the fact that the condition progressively improved with psychological treatment, and finally the temporary transference of the anæsthesia from the right side to the left side, all tended to throw the emphasis on a psychological explanation of the condition.

Turning now to the question of the sleep attacks, Kinnier Wilson [2] includes under the heading of narcolepsy two definite forms: (1) short attacks of sleep, associated with cataplexy; (2) attacks of prolonged sleep, among which he specifies those caused by hysteria, cerebral tumour or abscess, epidemic encephalitis and trypanosomiasis. This author makes several references to the as yet little understood accompanying symptoms of epistaxis and diplopia. In the present case a previous epistaxis, when it occurred, appeared always to prevent the onset of a sleep attack.

The cataplectic-like states already described, which occur either at the beginning or end of a sleep attack, correspond very closely to the pre-dormitial and post-dormitial types of sleep paralysis described by Levin.[3] The latter are brought on by the emotional experience of an unpleasant dream, and this was found to be present in this case. In his paper the author makes use of Pavlov's concept of spreading inhibition to explain sleep, and suggests that the differentiation between the sleep narcolepsy and the states of cataplexy and sleep-paralysis really depends upon the fact that in the one case the inhibition is confined to the substrate of consciousness, whereas in the other it is confined to the motility substrate. In the former, although the patient is apparently asleep, automatic acts can be performed; in the latter, although patient is unable to move, consciousness is retained. These various points are well illustrated in this case. Patient was able to take food and attend to her bodily needs during a prolonged sleep, while on other occasions, although unable to move, she was fully conscious of her surroundings. However, the phenomena observed in this case, although they embody most of the features of narcolepsy as described by these authors, do not show a sufficient uniformity to fit into any one picture.

The question of the autonomic imbalance would appear to be of particular importance in this case, but in this connection it is impossible to attribute the condition wholly to either the organic or functional aspects of the case.

It is possible that some organic change in the region of the hypothalamus may have been responsible for the various symptoms of parasympathetic overaction, but it is much more probable that it is the result of psychic conflict. The somatic response was obtained through the medium of the parasympathetic and patient tended to become conditioned to such responses.

The objective evidence of cerebral engorgement in this case suggests the possibility of raised intracranial pressure resulting from dilatation of cerebral vessels. There is also the evidence already referred to of engorgement of the ophthalmic veins and the subjective sensation of fullness in the head which frequently leads to an epistaxis. If an epistaxis does not occur, sleep sometimes ensues ; a loss of blood is invariably accompanied by marked improvement in the clinical condition.

Several workers have suggested that engorgement of the cerebral vessels predisposes to the onset of sleep, but recently F. A. Gibbs, E. L. Gibbs and Lennox,[4] using a thermo-electric blood flow recorder, inserted into the internal jugular vein, were unable to demonstrate any significant change in the flow of blood through the brain at the onset of sleep.

Hess [5] suggests that sleep is reflex in character, with the autonomic nervous system as mediator, a sleep centre probably being situated near the aqueduct of Sylvius. He has produced sleep artificially in cats by injecting ergotamine into the third ventricle. This damps the sympathetic and stimulates the parasympathetic. Electrical stimulation of the brainstem in the region of the supposed sleep centre produces a like effect. Dikshit,[6] in Edinburgh, has recently produced sleep experimentally by injecting acetylcholine into the lateral ventricle of cats.

The peculiar vascular disturbance confined to the right side of the face, arm and hand has already been referred to. The distribution suggests some connection with the hemianæsthesia, the afferent impulses concerned in the maintenance of the sympathetic tone of the capillaries being deficient, and an atonic condition resulting.

One can trace a growing tendency towards dissociation. There is a long history of somnambulism, and, more recently, of fugues. Other less complete dissociative phenomena are demonstrable. For instance, when in hospital, patient was walking in the grounds with two other patients when she suddenly became aware of the fact that she had no conception of her companions' identity. She continued to converse and eventually left them without having aroused any suspicion in their minds. Inside the hospital people appeared to be vaguely familiar, but she had forgotten their identity. She lay down and slept for an hour, and on waking, except for a slight feeling of confusion which soon wore off, she felt quite well.

The hemianæsthesia also demonstrates her dissociative phenomena. Patient said ' Yes ' when touched on the sound side and ' No ' when touched on the anæsthetic side. Bernard Hart [7] suggests that in such a condition ' Yes ' and ' No ' indicates a connection between a dissociative consciousness

which is aware of the sensation, and a normal consciousness which ignores it.

The cataplectic attacks and similar states closely resembling the predormitial and post-dormitial types of sleep-paralysis described by Levin may be regarded as further examples of dissociation.

It seems reasonable to suppose that the sleep attacks have developed from the previous less absolute states of dissociation. The faints, cataplexies, amnesias and sleeps may then be regarded as fulfilling much the same function in giving the patient a temporary escape from reality. They would represent a solution, though an unsatisfactory one, of her problems, and the symptoms being taken by her to represent some ordinary illness would not be accompanied by a feeling of concern and would produce the appearance of indifference in this case.

There would appear to be a strong purposive aspect in this case, and thus the personality being disinterested in the removal of the symptoms, they tended to become reflex and autonomic. Kretschmer [8] indicates how fainting, etc., may be divided biologically into three stages : firstly, the stage of acute affective reflex which is followed by the stage of voluntary reinforcement which falls gradually into the stage where the reflex is chronically impressed on the mind. In other words, the disgust and conflict associated with the early history of this case reflexly produced vomiting and fainting, but the absence of any strong wish to get well, and, indeed, a probable desire for illness, led to a reinforcement of the reflex which thereafter functioned with extreme ease and readiness. Subjective over-emphasis of such tendencies led to more profound manifestations, as, for instance, the varying degrees of unconsciousness. Finally, within recent years, the idea of death has come to have a strong appeal for the patient. It has come to be closely associated in her mind with the idea of sleep, both offering an escape from her conscious worries. Her attitude towards death, however, is ambivalent and the uncertainty of death frightens her. Her insomnia may be partly due to her associating sleep with death and the resulting conflict over her desire and fear of death.

In conclusion, it is now five months since patient was discharged from hospital and she has been free from symptoms except for occasional headaches, insomnia and fatigue.

SUMMARY

An attempt has been made to study from various angles the factors leading up to and found during attacks which are indistinguishable from normal sleep and last for several days at a time. The evidence in favour of an explanation along organic lines was rejected and a psychological explanation is offered.

I wish to express my indebtedness to Professor D. K. Henderson, Physician Superintendent of the Royal Edinburgh Hospital, for permission to publish this case and for much invaluable help and criticism. I am also

greatly indebted to Dr. Henry Tod, Biochemist, Royal Edinburgh Hospital, for his ready co-operation in the biochemical investigations of the case.

REFERENCES

[1] DUNCAN, A. GLEN., *Jour. Ment. Sci.*, 1933, **79**, 626.
[2] WILSON, S. A. KINNIER, *Modern Problems in Neurology*, 1928; and *Brain*, 1928, **51**, 63.
[3] LEVIN, MAX, *Jour. Neurol. and Psychopathol.*, 1933, **14**, 1.
[4] GIBBS, F. A., GIBBS, E. L., and LENNOX, W. G., *Brain*, 1935, **68**, 44.
[5] HESS, W. R., *Lancet*, 1932, **2**, 1259.
[6] DIKSHIT, B. B., *Lancet*, 1935, **1**, 570.
[7] HART, BERNARD, *Brit. Jour. Med. Psychol.*, 1926.
[8] KRETSCHMER, E., *Hysteria*, 1926.

Short Notes and Clinical Cases

THE PATHOGENESIS OF CATAPLEXY ON ANGER

By

MAX LEVIN, Harrisburg, Pennsylvania

Some narcoleptic patients complain of attacks of cataplexy occurring when they are angry. On first thought it might seem fair to assume that cataplexy thus provoked arises from the same mechanism as cataplexy on laughter, since in each case there is loss of power and muscle tone brought on by emotion. In this paper I shall try to show that the two mechanisms really are different.

Concretely, we may consider a number of cases in which cataplexy occurred while the patient, in angry mood, was striking his child, or was about to strike him. I do not know in how many cases this phenomenon has occurred, but anyone familiar with the literature will agree that the number is large. The following are examples: Henneberg's case, Somer's case 1, Goldflam's case 1, Wenderowic's case 2, Janzen's case 2, Kinnier Wilson's case 3, Sperling and Wimmer's case, and van der Scheer's case 1. In all these cases cataplexy occurred when the patient struck, or was about to strike, his child. In three cases cataplexy occurred when the patient struck, or was about to strike, an animal: Wenderowic's case 1, Cave's case 24, and Thiele and Bernhardt's case 6. Another instance to be considered occurred in Wenderowic's case 2. The patient, a streetcar motorman, occasionally had cataplexy when angered by wagon drivers arrogating to themselves the right of way on the car tracks and refusing to allow him to pass.

In considering the pathogenesis of these instances of cataplexy, I submit that the important thing about them is that the emotion in question, anger, *is accompanied by an impulse to action which the patient*, consciously or unconsciously, *strives to suppress*. Thus in Wenderowic's case 2 we may assume that the patient felt a strong impulse to leave his streetcar and forcibly eject the wagon driver from his path. Actually he did not carry out this impulse. As a self-restrained person he suppressed it. This suppression, a psychological phenomenon, has its physiological correlate, which I shall now examine.

In a consideration of the central processes correlative with movement, Hughlings Jackson's views are of the greatest importance. I shall therefore

begin by presenting those of his views that bear on the present discussion. In the following quotation [5] (II, 199) I have made two minor alterations in the first sentence :—

'In all voluntary operation there is preconception; the operation is nascently done before it is actually done; there is a "dream" of an operation as formerly done before the operation; there is dual action. Before I put out my arm voluntarily I must have a "dream" of the hand as being already put out. So, too, before I can *think* of now putting it out I must have a like "dream," for the difference betwixt thinking of now doing and now actually doing is, like the difference betwixt internal speech and external speech, only one of degree; in one there is slight discharge of a certain series of nervous arrangements, in the other strong discharge of that series. The "dream" must occur before I either think of now doing something, or before I actually do that thing, just as words must be reproduced in me before either I can say them to myself or aloud.'

Coming now more particularly to the parts excited when we have a 'dream' of a movement, Jackson believed that these parts are the highest centres. Thus he said [5] (II, 95, footnote) :—

'When I actually move my arm (say that it is what is popularly called a "voluntary movement") there is a process from highest motor centres, through lower centres, then by nerves to some muscles, which are discharged in a particular way. . . . When we think of the movement, or remember it (popularly "have an idea of it"), the physical process is limited to the highest centres; *the very same* nervous arrangements of these centres are engaged, but they are slightly engaged.'

In the light of these views we may now consider the events transpiring in the highest centres of the streetcar motorman whose case was reported by Wenderowic. When a wagon driver refused to move off the car tracks the motorman must have felt an impulse to put him off. Psychically, he had 'dreams' of certain movements (the movements he would make in putting the wagon driver off the car tracks); physically, there were excitations in his highest centres, their strength corresponding to that of the impulse. To say that the impulse was suppressed is to say that these excitations failed to be conveyed to the lowest motor centres. They failed of conveyance not because they were weak (they must have been very strong), *but because they were opposed by even stronger inhibitions.*

Elsewhere [7] I have shown that symptoms supervening upon the suppression of a strong impulse are of two kinds: (1) Excitation may be diverted from the substrate of the suppressed impulse into neighbouring substrates. For example, a soldier suppressing the impulse to run away from the front-line trench may become aware of a feeling of muscular tension. The result here is a positive symptom, in Jackson's sense of the term. (2) The inhibitions opposing the excitation may overflow into neighbouring substrates. Thus, the same soldier, instead of reacting with muscular tension, may react with

an attack of sleep, arising from the overflow of inhibition into the ' substrate of consciousness.' The result here is a negative symptom.

Returning to the case of the motorman, I suggest that the powerlessness which supervened during his frustrated anger resulted from the inundation of his motility substrate by the inhibitory process which came into being when he undertook to suppress his aggressive impulses.

Similar remarks apply to the cases in which cataplexy occurred when the patient lifted his hand against his child. Perhaps there are some persons who derive unalloyed pleasure from whipping their children, but certainly the average parent raises his hand with conflicting emotions, however great the provocation. The ancient parental saw ' This hurts me more than it does you ' contains a measure of truth, incredible as it may seem to the young culprit to whom it is addressed. In the motility substrate of the parent about to strike his child there is, therefore, besides a strong excitation, an equally, or almost equally, strong inhibition. When, as in narcolepsy, the motility substrate is unduly inhibitable, it may succumb to this inhibition, a cataplectic attack being the result.

What has been said regarding the pathogenesis of cataplexy occurring during the chastising of a child applies equally to that occurring during the chastising of an animal.

In the cases so far discussed, therefore, it would be misleading to say simply that the cataplexy is caused by anger. Viewing the matter more realistically, we must say that anger is accompanied by an impulse to some aggressive movement. When this impulse is socially unacceptable, the excitation concomitant therewith is checked by an inhibitory process. If the motility substrate is unduly inhibitable, it may succumb to this inhibitory process, the result being a cataplectic attack. It is, then, not anger but the suppression of a strong impulse which brings on cataplexy in the cases under discussion.

Utterly different is the mechanism of cataplexy on laughter. Here the emotion is accompanied, *not by action or the impulse to action, but by the opposite*. Hearty laughter makes one feel relaxed, weak. Whatever the mechanism of this weakness may be, cataplexy on laughter is, unlike cataplexy on anger, a *direct* concomitant of the emotion. Of course, cataplexy on anger and cataplexy on laughter have this in common, that they arise basically from the fact that the motility substrate is unduly inhibitable. Beyond this, the idea that they have anything in common is an illusion.

We now pass from positive evidence to a piece of negative evidence. Daniels [2] (p. 13) mentioned a narcoleptic who reported that he ' had not experienced difficulty in punishing those who would make sport of his infirmity.' This seeming exception is perfectly consistent with the hypothesis here presented. The significant thing about the case is that the situation permitted the patient to punish his tormentors *without internal hindrance*. Anyone so cruel as to make sport of another's misfortune may be punished

without scruple. We may be certain that during the execution of this punishment there was less cortical inhibition than there would have been had the patient been chastising a child or dumb animal.

SUMMARY

Cataplexy on anger and cataplexy on laughter, while superficially comparable, probably arise from different mechanisms. Anger is usually accompanied by aggressive impulses aimed at the cause which has provoked it. Under ordinary circumstances these impulses are opposed by inhibitory processes. For example, when a man is about to yield to the impulse to chastise his child, there is probably at the same moment a strong contrary impulse. Physiologically, besides excitation of certain cerebral areas, there is strong inhibition tending to nullify this excitation. If this inhibition is sufficiently strong, and if the motility substrate is sufficiently inhibitable, a cataplectic attack may ensue. Cataplexy in such cases is, therefore, due not so much to anger as to the suppression of a strong impulse. By contrast, laughter is accompanied not by impulses to action, but by the absence of such impulses, i.e. by relaxation and weakness. Comparatively speaking, then, cataplexy on laughter is a direct, while cataplexy on anger is an indirect, result of the emotion.

REFERENCES

[1] CAVE, H. A., 'Narcolepsy,' *Arch. Neurol. and Psychiat.*, 1931, **26**, 50.

[2] DANIELS, L. E., 'Narcolepsy,' *Medicine*, 1934, **13**, 1.

[3] GOLDFLAM, S., 'Zur Frage der genuinen Narkolepsie und ähnlicher Zustände,' *Deuts. Zeits. f. Nervenheilk.*, 1924, **82**, 20.

[4] HENNEBERG, R., 'Ueber genuine Narkolepsie,' *Neurol. Zentralbl.*, 1916, **35**, 282.

[5] *Selected Writings of John Hughlings Jackson*, 1931–1932.

[6] JANZEN, E., 'Ueber Narkolepsie (Gélineau-Redlich),' *Zeits. f. d. g. Neurol. u. Psychiat.*, 1926, **104**, 800.

[7] LEVIN, M., 'Crowding of Inhibition and of Excitation,' *Jour. Neurol. and Psychopath.*, 1934, **14**, 345.

[8] SOMER, W., 'Zur Narkolepsiefrage,' *Wien. klin. Woch.*, 1921, **34**, 132.

[9] SPERLING, O., and WIMMER, R., 'Zur Kasuistik und Auffassung der Narkolepsie,' *Deuts. Zeits. f. Nervenheilk.*, 1928, **102**, 252.

[10] THIELE, R., and BERNHARDT, H., *Beiträge zur Kenntnis der Narkolepsie* 1933.

[11] VAN DER SHEER, W. M., 'Narcolepsie en Cataplexie,' *Nederl. Tijd. v. Geneesk.*, 1934, **78**, 5114.

[12] WENDEROWIC, E., 'Hypnolepsie (Narcolepsia Gélineau) und ihre Behandlung,' *Arch. f. Psychiat.*, 1924, **72**, 459.

[13] WILSON, S. A. K., *Modern Problems in Neurology*, 1929, Chapter V. ('The Narcolepsies').

REGARDING THE 'STUFF' OF WHICH DREAMS ARE MADE—THE PSYCHOPHYSIOLOGICAL BASIS OF DREAMS

By

F. PARKES WEBER, London

'We are such stuff as dreams are made on.'—(Shakespeare, *The Tempest*, Act IV., Scene 1.)

In his recent great work on the interpretation of dreams Dr. W. Stekel,* of Vienna, again emphasizes the importance of the examination of dreams from the psychoanalytical point of view, as enabling the patient, mostly with the help of the interpreting psychiatrist, to 'know himself'—the ΓΝΩΘΙ ΣΕΑΥΤΟΝ of one of the seven wise men of Greece. Dr. Stekel also lays stress on the 'anagogic' as well as the 'katagogic' tendencies of the individual (individual psyche), which an analysis of his dreams reveals. The dreams reveal not only tendencies of the lower animal instincts, which are often more or less antisocial and 'katagogic,' but they reveal also, even in the individual's dream life, the presence of a certain amount of reasoning, and even moral control, and upward or 'anagogic' tendencies or strivings of the psyche.

Now it is obvious that dream pictures, dream thought and dream sensations of all kinds can only be derived (directly or, in an artistic or 'poetic' sense, indirectly) from the past experiences of the dreamer—whether in fact or in thought—what he has himself gone through, what he has seen or heard (experiences of others) represented in theatres, cinemas, books, etc., what he has thought of, and sometimes even what he has previously dreamed of (recurring dreams). Therefore, dreams must necessarily to some extent reveal the past history of the dreamer, including his past thoughts and instinctive feelings and tendencies, whether recognized by himself or not. In fact, it is literally true, in a limited sense, that 'we are such stuff as dreams are made on' (Shakespeare), for everything in our dreams must be derived from, or suggested by, incidents in our past life, past experiences and knowledge, or past thoughts. *But, of course, we are not merely 'such stuff as dreams are made on.' In fact, voluntary, reasoned, thought, not dream thought, is what 'makes the man,' when it is associated with adequate will power, or (may I say) free-will.*

* Wilhelm Stekel, *Fortschritte und Technik der Traumdeutung*, Vienna, 1935.

Dream thought (conscious or subconscious) is a primitive function of the brain lasting from birth to death, as I think and, as I understand, Dr. Stekel and others maintain. It persists, though hidden, as a background to (higher) voluntary thought and voluntary actions. It constitutes, in fact, a chief manifestation of the life of the brain-matter in human beings and animals. In *Some Thoughts of a Doctor* (1935, p. 13) I wrote that I had made use of my day dreams and ' pleasure-fancy ' in writing some of the essays. By that, all I meant to imply was that I had often watched the play of my dream thought or day-dream thought and to some extent directed or controlled it, in order to obtain here and there hints and pictures which I could use to illustrate my more conscious purposeful thought. On such occasions I was myself standing in a kind of ' no man's land ' between purposeful and dream thought, though ever ready to move to higher, purposeful, thought so as to exercise better control and see more clearly.

That dreams may be excited, determined, directed or ' coloured ' by extra-psychical agencies—such as the position of the body or parts of the body, surrounding temperature, abdominal, especially gastrointestinal, disturbances—I have no doubt *; in fact, I think that some nightmares may be regarded as representing the incorrect interpretation of organic, abdominal and other disturbances by the temporarily disordered sleeping brain. But into this large subject I do not wish to enter here.

What I wish here to point out is that many ordinary dreams of ordinary individuals, of the types that are usually quickly forgotten, do illustrate the above remarks regarding the sources and nature of dreams—the ' stuff ' of which dreams are made.

Wish-dreams, in which instinctive or other desires of the individual are fulfilled (' Wunscherfüllungsträume ') or not fulfilled, may of course be regarded as ' ordinary ' dreams, because their very existence depends on present or past, reasoned or instinctive, desires of the dreamer. I would add that ordinary dreams of ordinary healthy individuals are mostly pleasant (though mostly hardly worth remembering)—for the simple reason that most normal individuals live a kind of life, which within their means and moral limitations is calculated (though sometimes incorrectly calculated) to bring them individually the greatest possible amount of happiness. This holds good even though an onlooker might think that the individuals in question are spoiling or throwing away their life in the unnecessary and perhaps useless service of others, or on some apparently unintelligible hobby. Ordinary pleasant, unimportant dreams of adults are, in fact, intimately related to wish-dreams, in so far as the dreamers are mostly individuals who voluntarily live, what seems to them, as pleasant a life as they can, under their necessary limitations.

---

* See F. Parkes Weber, ' Nightmares and Freudian Explanations,' in *Some Thoughts of a Doctor*, 1935, p. 60.

PERSONAL EXPERIENCES

To illustrate the above remarks I shall now refer to some of my own dreams, which I believe are of no interest, excepting in as far as they confirm what I have stated in regard to the explanation and origin of the ' stuff ' of which ordinary dreams are made. Recently (July, 1935) just before awaking in the morning I dreamed that for some reason or other (I think it was to visit a sick relative) I was making a journey in France, or at any rate, in a French-speaking country. I arrived in a simple inn or restaurant near to a railway station in the country. Two middle-aged women of the house and two guests (French commercial travellers) as well as myself were in the refreshment room. There were one or two French journals lying about and there was a general friendly discussion going on about some subject, perhaps an article in one of the journals. The talk was nearly over, when I added the remark : ' C'est pour la patrie.' But I quickly corrected myself : ' C'est pour faire la patrie.' Soon afterwards, when the commercial travellers had left, I looked at the bill of fare, but did not see, or rather did not take the trouble to see, what was written on it, but asked : ' Est-ce qu'il-y-a de ragoût de mouton ? ' and, with the agreeable sensation of hearing that this dish was ready for me, I woke up.

The little dream illustrates various points. It was obviously suggested by my past experiences. I once had to make a journey through France to see a sick relative. With the exception of the cause of the journey the dream was, on the whole, a pleasant one ; there was an interesting conversation and I was just going to eat some ragoût de mouton when the dream ended. About 1892 and some years later I travelled a good deal about the country of France, seeing especially objects of archæological or of medical (balneological) interest. At that time at almost any country railway station, at almost any hour of the day, one could obtain a ' repas pour 1 fr. 50 c.,' consisting often of ragoût de mouton, with soup, and a little wine. This modest meal was always very welcome to me. I often had little conversations, but at that time I never ventured to say anything about ' la patrie.' My dream-phrase, ' pour faire la patrie,' was almost certainly inspired by recent casual political considerations concerning the views of Mussolini, Hitler, etc. The being able to make an improvement on what I had said, before anyone else took up the thread of the conversation, gave me definite pleasure in my dream—such as I should feel at a medical discussion in London if I were allowed to make a correction about something I had stated after once sitting down. But, above all, this correction in my dream illustrates the presence of a certain amount of reason and control in my dream-thought.

Another moderately pleasurable type of dream is that about being able to assist someone in some way or other. It is certainly related to ' wish-dreams,' as almost everyone likes to be of service to anyone in distress. But in my case any satisfaction is apt to be mixed with doubt whether I can be of any real use and whether it is worth while bothering.

Amongst 'know thyself' dreams I would include some former ones of mine in which I have fancied myself suddenly in a difficult or dangerous position and in which I have shown cowardice in getting out of it. It seems as if my controlling reason did not come to help me, but allowed my ordinary instinct to get me out of the acute danger in an inglorious fashion. I certainly was not the hero that I should have liked to fancy myself. As Dr. Stekel says: 'Know thyself, know thyself from thy dreams!'

Amongst pleasurable dreams connected with wish-fulfilment I would likewise include a recurring dream that I have had from time to time. I dreamed that I was walking with friends in a flowery garden or meadow in which there were many butterflies which I had never seen before, unless in pictures or collections. But I had no butterfly-net with me to catch any of these rare and exotic specimens differing from any butterflies met with in England. I was once an enthusiastic collector of butterflies, and this seemed in my dream to be a wonderful occasion for study or for obtaining rare specimens, though I had given up collecting long ago and no longer even possessed a butterfly-net to carry with me. Something almost like this actually happened to me recently in real life. I was (July, 1935) on the high mountain path leading from the Schafberg (Pontresina) to the Muottas Muraigl, when I noticed several butterflies of a kind that I had never to my knowledge seen before. They turned out to be the males of *Melitæa cynthia*, not rare in that locality. *Melitæa cynthia* is said never to be met with at an altitude below 1,500 metres above sea-level, and so of course I had not seen it in England. It is interesting for various reasons, notably as a good example of sexual dimorphism, though not as striking a one as the common 'Vapourer moth' (*Orgyia antiqua*) in Hyde Park (London), the female of which cannot fly, as her wings are rudimentary, though the male is a bright-coloured flyer, dancing merrily in the sunlight in search of the female.

I obtained information about *Melitæa cynthia* from a Munich surgeon, a keen amateur entomologist, who was taking his holiday at Pontresina. I should mention that he apparently did not use an ordinary plaster of paris and potassium cyanide killing-bottle, similar to that which I formerly used. A few nights afterwards I had a very ordinary kind of dream, beginning with pleasurable holiday hotel conversation, but ending with a difficulty. In the dream, somehow or other, together with things of no importance, a bottle containing potassium cyanide was left in my charge. I did not know what to do with it, and was worried with the trouble I must have to seek out the people who had left the bottle with me, and explain to them the responsibility they had in regard to a bottle with such dangerous contents. Then I awoke. In that dream there was nothing about butterflies, but when I awoke, I remembered that I had recently been telling someone about a disagreeable incident in regard to a cyanide of potassium killing-bottle. In the first week of September, 1878, I was with my father and mother on a holiday in the Black Forest, and on a certain day I was collecting butterflies,

whilst my father was engaged in conversation with Professor Burdon-Sanderson, who was walking with us. Unfortunately I broke the killing-bottle and thoughtlessly threw away the broken bottle in an open ditch. When I told my father of my loss, he was rather disturbed, but, after consultation with Professor Burdon-Sanderson, it was decided not to retrace our steps in a probably futile attempt to find the broken bottle. That same evening or the next morning Professor Burdon-Sanderson kindly obtained a substitute for the broken killing-bottle, but it was not made with potassium cyanide and was not convenient. After a day or two my father and a local chemist succeeded in making me a new killing-bottle with a mixture of plaster of paris and cyanide of potassium. But from time to time I have naturally thought of this incident, though it occurred fifty-eight years ago. This dream had again reminded me of a thoughtless inconsiderate action, and had thus, in a kind of way, 'reminded me of my knowledge of myself,' if I may put it thus, as I suppose that Dr. Stekel and others would put it.

CONCLUSION

On the whole, I think that these views regarding the origin and nature of the 'stuff' of which dreams are made, are confirmed by examination of ordinary dreams, as well as those of neuropathic individuals, and I believe that what Dr. Stekel stresses about 'anagogic' as well as 'katagogic' mental tendencies revealed by dreams is important. A priori, I would argue that as 'anagogic' tendencies manifest themselves in the life of everyone they must manifest themselves also in dreams, which after all to some extent reflect (and are certainly derived from) the past life.

This short note of mine deals, I would say, with the psychophysiological side of dreams, whereas Dr. Stekel's great work deals mainly with the psychopathological side, that is to say, with the interpretation of dreams from the psychopathological and psychiatric points of view.

ADDENDUM.—I will here take the occasion to mention that 'The Storming of the New Jerusalem' which I described as a dream in 1932,* was really a pseudo-dream, as I presume Dr. Stekel recognized when he included his analysis of it in his book (pp. 278–282). I do not think this in any way affects Dr. Stekel's criticism of it. In fact, it was a kind of day-dream, for it all came into my mind one afternoon during the five minutes it took to walk (there was not much traffic in the streets to disturb my thoughts or day-dream) from my flat to my consulting-room. I had, however, long been meditating the subject and had thought that if Dr. C. A. Mercier had been still alive, he would have criticized some of the extreme Freudian writings in an interesting and amusing way. My article in question was intended as a substitute for what Dr. Mercier would doubtless have written more logically and convincingly had he been alive.

---

* F. Parkes Weber, *Med. Press and Circ.*, 1932, **184**, 217.

Editorial

THE PATHOGENESIS AND TREATMENT OF ACUTE ANTERIOR POLIOMYELITIS

GREAT BRITAIN has been fortunate, as compared with not a few other countries, in not having suffered from any extensive outbreaks of anterior poliomyelitis. The disease is endemic here, and cases occur every month of the twelve, rising in their numbers during the late summer and early autumn ; every now and again, too, as the pages of current medical journals show, there are small and limited epidemics clustering in and round some village or town. But so far we have escaped the ravages of the disease such as they have been in Scandinavia, America, or Australia. For that very reason, perhaps, it is well to take stock of the situation, and, indeed, for the sake too of restricted attacks, which, however small they are, can be just as calamitous in their residua.

Of recent years knowledge has much increased in regard to the action of the still unrecognizable virus on the central nervous system. As long ago as 1913 Römer showed that intracerebral injection of the virus was succeeded not by cerebral but by spinal symptoms, and this line of study has been prosecuted with ampler material by Hurst and his co-workers. It may now be regarded as fairly definite that the noxa is a neurotrope in the sense that it turns to the central nervous system, although, like that of rabies and one or two others, it at the same time causes reactions in the mesoderm. Experiment has proved that infection can take place in the monkey by one or other form of inoculation—intracerebral, intranasal, intrasciatic, intrathecal, and intravenous. Whichever route be chosen, the result is the same, though easier to secure by some modes than others. Curiously enough, intranasal inoculation is not always so successful as other forms, yet this is believed to be the method selected by Nature. The course pursued by the virus from nose, theca, sciatic, or cerebrum has been followed with some minuteness, and the general conclusion is that the poison travels along

the lines of cell-fibre systems, i.e. adopts a periaxonal means of spread, en route from periphery to neuraxis or from brain to cord. But this is not the whole story; when, for instance, inoculation is by lumbar puncture, the virus is transmitted by the cerebrospinal fluid system to various places, and filters through ependyma or meninges to gain the nervous system proper. When injection is made directly inside the brain, meningeal reactions do not appear in any major degree—not until, as is claimed, cells begin to overflow from engorged vessels within the cord; but it is self-evident that this particular mode of experimentation does not reproduce the conditions as they occur in the natural disease. When Hurst injected his animals intranasally, in one at least there was severe and widespread infiltration of the meningeal system; and since infection by the intravenous route has proved successful as well, it is clear that the means whereby the virus may reach the nervous system are multiple. On its way from cerebrum to cord it turns aside to enter various ganglion-cell collections at the base, in the brainstem, and elsewhere; it does the same, more or less, when implanted on the nasal mucosa. These considerations should make us hesitate ere assuming that what the experimentalist can do with the virus is the same as what Nature does; she certainly does not choose to start the process within some region of the cerebral cortex or subcortex, inside the sciatic sheath or amid its fibres; the virus has first to overcome the outer barrier of unbroken surface, wherever that be; and if the evidence points to the olfactory mucosa there is nothing in the mass of experimental material to disprove that the fluid system may be implicated as a consequence.

These notions bear on the question of treatment. There has been a tendency of late to assert that treatment by serum of one or other sort is scientifically invalid, as the procedure leaves out of account the 'fact' that the virus is already tucked away in neural tissues before treatment can begin, and therefore that the serum cannot reach the spot where the poison is and neutralize it. The logical inference would be that serum treatment is nothing short of bogus. But we believe that the claim is based on mistaken conceptions. When serum is administered intravenously, it is given by the same route as that by which infection can occur, and has occurred, experimentally; when it is inserted into the theca, again it follows a route whereby experimental success has been attained, and no good reason has been offered for contending that the

virus can travel by these channels and its antidote cannot. Enough has already been said to deprecate the habit of applying experimental conclusions to natural processes of disease without due reflection.

The truth is, that the serum method has laboured under difficulties from the very outset, and that these have not as yet been overcome. Individual epidemics have contrasting features; the viricidal content of different sera cannot be standardized; strains of virus and potency of derivative sera must alter from time to time and place to place. Again, in seeking to evaluate its worth we must bear in mind the peculiarities of the disease—of which the most significant in this connexion is the fact that a large number of cases are by nature abortive, partial, or nonparalytic; and there is also the question whether every case treated has belonged to the poliomyelitic class. Hence adjudication on the merits of serum treatment has, so far, ended in little else than conflict of opinion. A good deal has been heard of ' control ' methods; in the New York epidemic of 1931, according to figures supplied by Park, 519 cases were treated with serum, and 408 without; and the result would appear to be that no merit could be found on the part of serum technique in either reducing case fatality or preventing later palsies. Park's figures have been quoted far and wide as though they closed further discussion, but they have been submitted to stringent criticism by Dame Jean Macnamara in a recent issue of the *Medical Journal of Australia*. She says in so many words: ' Dr. Park's workers freely admitted that no one bothered to make certain that the donors [of convalescent or immune serum] had had poliomyelitis, and the patients labelled preparalytic were not examined to exclude paralysis '; moreover, she states that Dr. Park ' naively admits that the two groups [serum-treated and non-serum-treated] were not comparable. " There was accidental inclusion of a somewhat larger number of graver infections in the treated cases ".' Macnamara's results have been better than those secured by any other worker; among 133 cases submitted to serum treatment there have been only seven failures. At the very least, then, empiricism (if it be that) has made out a prima facie case for the use of convalescent or immune serum in natural poliomyelitis. No doubt there are other objections; the method is sometimes looked at askance because whatever the therapeutic channel the results seem to be much the same. But at all events less should be said of absence of statistical proof. Dame Jean Macnamara raises a protest against this frequently

repeated ' argument.' She has not been able to find that any therapy used in medicine or surgery has been so tested. The use of diphtheria antitoxin does not rest on statistical proof, and it is recognized that some diphtheritic patients recover without specific treatment. The surgeon knows that some cases of acute appendicitis are cured without the knife, but he does not ask for a series of patients treated with and without operation to guide him. We echo Dame Jean Macnamara's words with approval: ' The physician's place in clinical medicine is to afford the patient the best protection against potential danger that he knows. In the case of poliomyelitis diagnosed before paralysis has developed, it is an adequate injection of immune human serum.'

Abstracts
Neurology

NEUROANATOMY AND NEUROPHYSIOLOGY

[30] **Experimental catatonia and the activity of the cortical sensorimotor centres** (Catatonia sperimentale ed attivita dei centri corticali sensitivo motori).—E. MONDIO. *Riv. di pat. nerv. e ment.*, 1935, **44**, 627.

THE author has endeavoured to study the behaviour of the excitability and the reflex activity of the sigmoid centres in the dog in catatonia produced by bulbocapnin.

Using various doses of the drug he obtained in the different experiments practically all the catatonic symptoms observed and described by previous authors—narcosis, catalepsy, various hyperkinetic phenomena and epileptic convulsions. In none of these phenomena is the factor of inhibition or of excitation accompanied by appreciable variation in the excitability or reflex activity of the sensory motor cortical centres, or in the spontaneous behaviour of the animals subjected to experimental epilepsy.

The author has been able to demonstrate that the epileptic convulsions induced by strong doses of bulbocapnin were always definitely of noncortical origin.

The author regards the hypothesis of the cortical origin of experimental catatonia and of the specific action of bulbocapnin on the sensory motor cortex as unfounded.

R. G. G.

[31] **Cerebral circulation. XXXIII.: The effect of nerve stimulation and various drugs on the vessels of the dura mater.**—J. L. POOL, G. I. NASON and H. S. FORBES. *Arch. of Neurol. and Psychiat.*, 1934, **32**, 1202.

VARIOUS experimental procedures carried out on young cats resulted in the following changes of the dural arteries.

1. Stimulation of the cervical sympathetic nerve—ipsilateral constriction (average decrease in diameter 34 per cent.).

2. Stimulation of the vagus nerve—dilatation (average increase 15 per cent.) or no change in diameter.

3. Injection of epinephrine—constriction (average 29 per cent.).
4. Injection of pitressin—constriction (average 33 per cent.).
5. Inhalation of carbon dioxide—inconstant results.

The conclusion is reached that there is a close approximation between the degree of vasoconstriction in the dura and in the skin, both being considerably greater than that in the pia. Vasodilatation, on the other hand, is perhaps greater in the pia.

R. M. S.

NEUROPATHOLOGY

[32] **A study of neuroglia in man** (Studio sulla nevroglia umana).—V. Tronconi. *Riv. di pat. nerv. e ment.*, 1935, **45**, 223.

The three main types—neuroglia, astroglia and oligoglia—are distributed sparsely in the superficial cortical layers but show certain differences from layer to layer and from field to field. These differences however are not so great as to permit the observer to distinguish a cortical field by the arrangement of the glia without also taking into account the arrangements of nerve-cells and -fibres. All that is claimed is that the author's observations establish a standard for comparison in pathological conditions.

The second part of the study is concerned with neuroglial changes in diseases not affecting the nervous system.

This requires careful and critical examination, for progressive and regressive changes in the neuroglia are fairly common in the human cortex. All three types may be modified in diseases which seem to have no other effect, clinical or pathological, on the nervous system. Pure hyperplasia of the glia does occur, but a diagnosis of such a condition should only be arrived at with great caution. Even in diseases not affecting the nervous system the neuroglia and astroglia may form an almost continuous network. The staining properties of the glial cells may show variation, and this in itself would seem to be a progressive pathological change.

The question whether there is a correlation between vascular distribution and glial stratification cannot yet be answered with certainty.

R. G. G.

[33] **Primary ependymitis : Subacute type with occlusion of the foramina of Monro and hydrocephalus of the lateral ventricles.**—J. G. Arnold. *Arch. of Neurol. and Psychiat.*, 1934, **32**, 143.

The term ' primary ' is used to designate the relatively uncommon group of cases of ependymitis in which there is no demonstrable concomitant inflammatory reaction of leptomeninges or cerebral tissue. When ependymitis is the result of meningitis or abscess of the brain, the clinical course is that of the

underlying disease. In the primary type the course and prognosis seem to depend on only one factor, i.e. the appearance and degree of obstructive hydrocephalus. Primary ependymitis, then, is a selective process, either toxic or infectious, which affects only the ventricular ependyma, subependyma and occasionally the choroid plexus, producing symptoms by its stenosing effect on the ventricular foramina, with concomitant obstructive hydrocephalus.

The signs and symptoms are due chiefly to hydrocephalus: increased intracranial tension (headache, vomiting, mental changes, papillœdema, bradycardia and occasionally convulsions), few, if any, localizing signs, and a tendency towards remissions.

The disease is simulated by cerebral neoplasm, tuberculous meningitis and syphilitic meningitis.

R. M. S.

[34] **On the morphology and histogenesis of the cerebral angioreticulomata** (Su la morfologia e la istogenesi degli angioreticulomi encefalici).—C. Pana. *Riv. di pat. nerv. e ment.*, 1935, **44**, 1.

Two cases are described of multiple angioreticulomata in the brain. They occurred in a brother and sister aged 48 and 50 respectively who died at an interval of three years from each other. In the first case the localization was bulbar and cerebral; in the second the two lobes of the cerebellum were concerned. The histological appearance of all the tumours was similar.

After having drawn attention to the characteristic familial distribution of the condition the author discusses the complex morphology and histogenesis of the separate elements making up the angioreticuloma—histiocytes of different types, giant cells, pseudoxanthomatous cells, erythropoietic elements, vascular formations, cystic cavities, and their correspondence with other affections of the reticuloendothelial system.

Taking into account certain morphological characteristics, the superficiality and the ubiquity with which these formations are met with throughout the cerebrospinal axis, the author suggests that their origin is to be sought for in the constituent elements of the leptomeninges.

R. G. G.

[35] **Experimental infections of the nervous system with cryptococcus histolyticus (torula)** (Infezione sperimentale del sistema nervoso da Cryptococcus histolyticus (Torula)).—V. Tronconi. *Riv. di pat. nerv. e ment.*, 1935, **44**, 32.

In macaque monkeys death occurs fairly quickly after injection of this organism. The clinical course was similar in all the animals, though the

anatomicopathological findings presented some differences. Meningeal and perivascular lesions were for the most part destructive.

Two types were met with : in one the inflammatory elements were not conspicuous while very many organisms were seen ; in the other the condition resembled that of tubercular meningitis. Besides meningovascular changes, lesions were discovered actually in the nervous tissue.

Cystic cavities were found both in the brain and the spinal cord containing much cellular detritus and some parasites, but little inflammatory material and with little or no reaction round them. The interstitial tissue always participated in the morbid process and when the parenchyma was affected there was always progressive or regressive glial reaction.

The clinical course and pathological findings of the experimental cases were similar to those which occur in accidental infections of human beings.

R. G. G.

[36] **Calcification of the choroid plexus** (Sulle calcificazioni dei plessi corioidei).—R. GATTA. *Riv. di pat. nerv. e ment.*, 1935, **45**, 423.

CALCIFICATION may occur in the choroid plexus either in the villi or in the arachnoid. The first is represented by psammomata and the second by simple calcareous deposits in the myelin material. Calcification of the villi increases as age advances, though not at a constant rate.

A diffuse calcification which makes the plexus demonstrable by X-ray should always be regarded as pathological.

R. G. G.

[37] **Cysts in the pia mater of the Sylvian fissure producing deformity of the brain** (Ueber Cystenbildung der weichsen Hirnhäute im Liquorraum der Sylvischen Fürche mit hochgradiger Deformierung des Gehirns). —E. SCHERER. *Zeits. f. d. g. Neur. u. Psychiat.*, 1935, **152**, 187.

A LARGE cyst in the pia mater of the Sylvian fissure was accidentally discovered in three cases. The brain was considerably distorted by the accumulation of a large quantity of fluid. No clinical symptoms had arisen. These cysts are probably formed slowly, allowing sufficient time for the brain to adapt itself to the alteration resulting from the accumulation of fluid. It is noteworthy that a similar accumulation of cerebrospinal fluid in the Sylvian fissure was found as a result of a head injury which was discovered at operation performed a few days later.

M.

[38] **Concentration of blood-pigment in the cerebrospinal fluid as a result of the action of histamine** (Der Farbstoffübertritt vom Blut in den Liquor unter dem Einfluss von Histamin).—HELMUT SPROCKHOFF. *Deut. Zeits. f. Nervenheilk.*, 1935, **137**, 277.

THE question is discussed whether the products of disintegration arising in the body, which act on the bloodvessels, may have an influence upon the permeability of the bloodvessels in the brain. Experiments performed on dogs showed that the pharmacological representative of such substances of disintegration, viz., histamine, enables fuchsin S to penetrate into the cerebrospinal fluid. Other experiments were performed in order to ascertain the regions in which this permeability is increased by histamine.

M.

SENSORIMOTOR NEUROLOGY

[39] **Ependymal tumour of the spinal cord and progressive spinal muscular atrophy** (Ependimomatosi midollare e atrofia musculare progressiva spinale).—G. PINTUS. *Riv. di pat. nerv. e ment.*, 1935, **45**, 591.

A CASE is described of progressive muscular atrophy of the spinal type which, besides some atypical distribution of the muscular atrophy, did not present when examined electrically during its whole course of nearly two years any signs of the reaction of degeneration, but only simple hypoexcitability with at most some slow contractions or slight increase so that the polar reactions were equal.

Autopsy showed the following findings : A proliferation of the ependymal cells so that the central canal was entirely obliterated throughout the length of the medulla. The character of the cells indicated that the condition represented a midway position between ependymal tumour-formation and simple proliferation similar to what occurs in a gliosis.

Lacunæ were also found in the region of the grey commissure. These might be due to the enlargement of the perivascular spaces and alteration of the surrounding nervous tissue, but also possibly to the circulation of the liquor pressed out of its usual channels by the obliteration of the central canal.

Finally there was a great reduction in the number of anterior horn cells in the whole length of the spinal cord, especially in the region of the cervical and lumbar enlargements. There was a slight lymphocytic reaction round a certain number of the vessels of medium calibre, especially those lying between the white and grey matter.

This condition should be distinguished from chronic poliomyelitis of the adult. It showed no signs of inflammatory origin, and while it might be due to toxic causes, it was impossible to exclude an embryonic origin.

No remedy used, whether drugs or physical methods, succeeded in arresting the fatal progressive course of the malady.

R. G. G.

[40] **X-ray changes in the vertebral laminæ in cases of spinal cord tumour** (Über Wirbelbogenveränderungen bei Rückenmarkstumoren im Rœntgenbild).—H. STEFAN. *Zeits. f. d. g. Neurol. u. Psychiat.*, 1934, **151**, 683.

THE results previously reported by Elsberg and Dyke (*Bulletin of the Neurological Institute of New York*, 1934, **3**, 3) were confirmed. In many cases of spinal cord tumour characteristic alterations were observed on X-ray examination of the vertebral column.

M.

[41] **Tumours in the spinal canal in childhood.**—W. B. HAMBY. *Jour. Nerv. Ment. Dis.*, 1935, **81**, 24.

A STUDY of 100 cases of spinal tumour in childhood described in the literature, with the addition of one case. This review shows that the characteristic tumours of infancy and early childhood are lipomas and dermoids, while meningiomas and chloromas occur only late in the period of childhood. Sarcomas, gliomas, lipomas and neurinomas may occur at any time throughout the period.

R. G. G.

[42] **Echinococcus affecting the vertebral column and spinal cord** (Echinococcus der Wirbelsäule und des Ruckenmarks).—N. H. POPOW and B. J. UMEROW. *Deut. Zeits. f. Nervenheilk.*, 1935, **137**, 186.

ECHINOCOCCUS of the spinal cord is a rare disease. As a rule the abdominal and thoracic cavities are the primary site with a secondary penetration into the spinal column. Primary involvement by echinococcus of the vertebræ themselves is very rare. A subdural or intramedullary localization of the parasite has been observed in very few cases up to the present time. An example is described in this communication. An unusual phenomenon observed was the disappearance followed by reappearance of the ankle-jerks, the latter occurring possibly as a result of a biological process in the parasitic cyst, such as the splitting off of a daughter cyst. Characteristic changes produced by the echinococcus appears to be demonstrable on X-ray examination, viz. destruction of the body of a vertebra with formation of cavities showing a rounded and regular form.

M.

[43] **Intramedullary tumours of the brainstem.**—C. C. HARE and A. WOLF. *Arch. of Neurol. and Psychiat.*, 1934, **32**, 1230.

THE clinical signs and autopsy findings in seven cases of glioma of the brainstem are reported. In three of the seven cases the neoplasm was an astrocytoma fibrillare, in three a glioblastoma multiforme and in one a polar spongioblastoma. The histological structure was similar to that found in the same types of tumours situated elsewhere in the brain. The extent of the neoplasms as seen at autopsy was usually much greater than one would have suspected from a study of the clinical signs and the course of the disease.

Considerable difficulty may be encountered in establishing the clinical diagnosis in a case of tumour of the brainstem. A history taken carefully and completely with regard to the manner of onset of illness and the progression of symptoms is of great diagnostic aid. If a diagnosis of tumour of the posterior fossa is established, and there are signs of a nuclear involvement of the cranial nerves, one should suspect that the lesion is completely or partially intramedullary. The intramedullary gliomas are somewhat more frequent in children than in adults. An exploratory operation of the posterior cranial fossa should be performed if there is doubt whether the tumour is inside or outside the brainstem. If the localization is obviously intramedullary, cranial operative procedure is contraindicated.

R. M. S.

[44] **A new syndrome in the diagnosis of tumour of the corpus callosum** (Ein neues Syndrom zur Diagnostik von Balkentumoren).—J. MICHELSEN. *Deut. Zeits. f. Nervenheilk.*, 1935, **137**, 152.

THE following symptoms were observed in seven cases of tumour of the corpus callosum: (1) Profound mental alteration without predominance of any particular psychiatric type; (2) increase in the body-temperature without demonstrable infection; (3) xanthochromia and an increase of cells in the cerebrospinal fluid.

M.

[45] **Arachnoiditis of the optic chiasma** (L'aracnoidite del chiasma nei nervi ottici).—G. LO CASCIO. *Riv. di pat. nerv. e ment.*, 1935, **44**, 638.

A CASE is described in full. The clinical course was about two years. The initial symptoms were headache and restriction of vision first in the left eye and then spreading to the right. Progress was intermittent with exacerbations of headache and diminution of vision amounting to almost complete amblyopia. These symptoms were of short duration and were accompanied by polyuria and somnolence and once by an epileptic fit.

So far as treatment is concerned most authorities advise surgical intervention. Radiological treatment is not yet far enough advanced to be confidently recommended while drug treatment may be useful in syphilitic and other specific infections.

R. G. G.

[46] **The relation between non-suppurative disseminated encephalomyelitis and disseminated sclerosis** (Zur Frage der Beziehungen zwischen des disseminierten nichteitrigen Encephalomyelitis und der multiplen Sklerose).—G. PETERS. *Zeits. f. d. g. Neurol. u. Psychiat.*, 1935, **153**, 356.

A REPORT on two cases of non-suppurative disseminated encephalomyelitis which could be distinguished from disseminated sclerosis on clinical as well as on histological examination. Other authors, however, described cases in which no such distinction can be made. For this reason it is considered that no fundamental differentiation exists between the two conditions either from a clinical or from a pathological standpoint.

M.

[47] **Acute aseptic meningitis.**—H. R. VIETS and J. W. WATTS. *Jour. Nerv. Ment. Dis.*, 1935, **80**, 253.

FURTHER examinations of cases now amounting to 14 of acute aseptic meningitis. The cerebrospinal fluid in this condition is characterized by a lymphocytic pleocytosis though occasionally polymorphs may be seen. Clotting may also occur in the fluid. Sugar and chlorides are always normal in contradistinction to the findings in tubercular meningitis. The condition should be considered as a clinical entity as no definite relationship, in the authors' view, exists between it and other morbid states.

R. G. G.

[48] **Encephalomyelitis disseminata following ascending neuritis.**—ROSS H. THOMPSON. *Jour. Nerv. Ment. Dis.*, 1935, **81**, 373.

THE possibility of infection in the central nervous system by spread along the lymphatics surrounding the peripheral nerves is illustrated by a case of typical ascending neuritis following a purulent infection of the left index finger and hand and definitely involving the outside column of the left side. The process continued for 59 days, gradually spreading inwards and causing paræsthesiæ of lower segments and upwards so as to result not only in pyramidal involvement but also diplopia and nystagmus. From this it would

appear that there must be direct connexion between the lymph spaces of the perineural sheaths and the spinal subarachnoid space.

R. G. G.

[49] **Contribution to the symptomatology of disseminated sclerosis** (Beitrag zur Symptomatologie der multiplen Sklerose).—G. PETERS and H. LEWENSTEIN. *Deut. Zeits. f. Nervenheilk.*, 1935, **137**, 119.

A GIRL of 25 began to suffer from a mental disturbance which continued up to her death at the age of 28. The physical signs of disseminated sclerosis developed only ten days before the fatal termination. The mental symptoms were those of an amentia with an intermittent exacerbating course, of the type supposed to be characteristic in mental disturbances resulting from disseminated sclerosis.

M.

[50] **A rare form of periodic paraplegia** (Su di una rara forma di paraplegia periodica).—A. CAPELLI. *Riv. di pat. nerv. e ment.*, 1935, **44**, 382.

THE case described showed an organic process causing complete transverse destruction of the spinal cord with ascending and descending degeneration of tracts. Clinically the case was marked by frequent and rapid periodicity during the course of the disease. The periodicity may have been due to extraneous events such as menstruation, abortion and therapeutic intervention, which probably acted by increase or decrease in the filling of local vessels. It is impossible to be sure of the reason for the periodicity, but in any case this would appear to be a rare form of spinal paraplegia.

R. G. G.

[51] **Colloidal thorium dioxide : its use in intracranial diagnosis and its fate on direct injection into the brain and the ventricles.**—L. ALEXANDER, T. S. JUNG and R. S. LYMAN. *Arch. of Neurol. and Psychiat.*, 1934, **32**, 1143.

COLLOIDAL thorium dioxide allows visualization of the cerebral arteries, but the injection of this substance into dogs shows that if it enters the brain proper it acts as a foreign substance. The possibility of harm from intracarotid injections of colloidal thorium dioxide seems to lie in the more remote effects of thorium in the body.

R. M. S.

[52] **Polycythæmia vera and its neuropsychiatric features.**—N. W. Winkelman and M. A. Burns. *Jour. Nerv. Ment. Dis.*, 1933, **78**, 597.

Two cases of polycythæmia vera, showing mental and nervous manifestations, are reported. The subjective complaints are usually headache, giddiness, and scotomata. The mental phenomena did not fit in with any psychiatric picture, but confusion and deterioration have been the predominant signs.

Microscopic examination of the nervous system of one of the cases showed such dilatation and engorgement of the blood vessels that stasis had resulted with anoxæmic changes in the ganglion-cells. The blood vessels themselves were extremely tortuous and frequently swelling of the lining cells had occurred to such a degree that denudation was noted.

The histological picture presented in this case will readily explain the neuropsychiatric complications.

R. G. G.

[53] **The clinical aspect of Cushing's disease** (Ein Beitrag zur Klinik der Morbus Cushing).—W. Schoen. *Deut. Zeits. f. Nervenheilk.*, 1935, **137**, 177.

A typical case of Cushing's syndrome is described with symptoms of adiposity, genital dystrophy, hypertonia and glycosuria together with osteoporosis. An adenoma in the anterior lobe of the pituitary body was the basis of the disorder. Bilateral temporal hemianopia with optic atrophy was also present. The basal metabolic rate was increased (+ 23). Mental disturbances are noted in some cases, e.g. that of a girl aged 25, formerly quite normal, who showed the intelligence of a child of seven; she was also irritable and uncontrolled.

The author considers it doubtful if the alteration in the pituitary body was primary in nature or the result of pathological processes elsewhere in the body, as, in addition to the pituitary, other endocrine organs often show a disturbance of function.

M.

[54] **The migrainous patient: a constitutional study.**—G. A. Touraine and G. Draper. *Jour. Nerv. Ment. Dis.*, 1935, **80**, 1.

This is an attempt to establish a constitutional type in migraine. The authors suggest that it is possible to recognize a skull conformation with acromegaloid trends, an outstanding intelligence and a retarded emotional development. The headaches tend to be similar in nature and occasion of onset in practically all cases, and they tend to begin when the individual is required to face situations on his own in the absence of customary home

protection and support. There seems to be a family tendency chiefly on the maternal side and the possibility of imitative derivation should not be lost sight of. In the opinion of the authors the physical symptoms and the disturbance of physiological processes are secondary to and precipitated by an emotional discharge. This probably accounts for the fact that a large number of remedies may be successful for a time, but cure is alleged only to result if and when the patient ever grows up on his emotional side.

R. G. G.

PROGNOSIS AND TREATMENT

[55] **Diathermy in the treatment of general paralysis.**—HARRY J. WORTHING. *Psychiatric Quarterly*, 1933, **7**, 245.

IT was thought that possibly the method of producing fever by the use of a mechanical method might bring about satisfactory results and have less disadvantages than malarial therapy. The application of treatment by diathermy is here described. Though only a comparatively small number of cases (i.e. six) were experimented with, the findings mostly agree with those of others who have used diathermy over a longer period. A similar and controllable fever simulating that of malaria could be produced, but the patients expressed extreme discomfort when the temperature rose above 102° F. and begged that the treatment be discontinued. The white blood corpuscles and red corpuscles increased during each individual treatment, the red-cell rise being as much as one million, and the white cells from 1,000 to 4,000. With this increase the cell count showed a reduction in percentage of the lymphocytes and rise in the percentage of polymorphonuclears. There was loss in weight after each treatment, varying from ½ to 2 lb. Clinically there was mental improvement in three of the patients. One recovered, left the hospital and maintained himself. In three the colloidal gold curve showed a pronounced reduction. In three there was no change. Blood and spinal fluid Wassermann tests were not modified. This writer feels we must not be too hasty in dispensing with malaria, though there undoubtedly will be a place for diathermy with the more co-operative patients.

C. S. R.

[56] **Life expectancy in general paresis.**—IRVING M. DERBY. *Psychiat. Quarterly*, 1935, **9**, 458.

MALARIA and other therapy that has increased the average duration of life in paretics has been utilized over so recent a time that it is too early to evaluate completely a correct expectancy of life. At the Brooklyn State Hospital in a series of 870 admissions, 225 patients are still alive—several

having lived more than ten years since admission. The average duration of life in all paretic admissions has increased in ten years from one year and six months to nearly two years and nine months. Selecting patients that lived sufficiently long for therapy to take effect, the duration of life has increased in the same period from two years and nine months to three years, 10·5 months. While untreated patients lose 90 per cent. of their expectation of life, estimated from a mortality rate among the entire State Hospital population, properly treated cases attain at least 20 to 30 per cent. of their hospital expectation of after life time. There is no marked variation between the cerebral and tabetic types of general paresis in this series, treatment adding approximately the same general expectancy. The male tabetics, however, have a shorter average life following admission than do the males of the cerebral classification. The comparison of life duration by sex shows very slight differences, men of this series living slightly longer than women.

C. S. R.

[57] **Juvenile dementia paralytica, with special reference to its treatment with malaria.**—Udo J. Wile and Eugene A. Hand. *Jour. Amer. Med. Assoc.*, 1935, **105,** 566.

Prognosis in juvenile dementia paralytica has been changed little, if at all, by the advent of malaria and other forms of fever therapy. Malaria therapy prolongs life in some cases and in a few it seems to retard the progressive dementia. The slight improvement that is found occasionally does not raise these unfortunate patients to the level of social and intellectual usefulness and only adds to the burden the family or society or both must bear. Malaria therapy helps very little in the prognosis in the large majority and should not be used except in rare selected cases.

C. S. R.

[58] **A new treatment of cerebral hæmorrhage and its effects** (Una nuova cura dell'emorragia cerebrale e dei suoi effetti).—R. Colella and G. Pizzillo. *Riv. di pat. nerv. e ment.*, 1935, **45,** 116.

The author has studied many cases of vascular cerebral accidents (hæmorrhage, embolism and thrombosis) and thinks that the effects of these can be prevented or remedied by autohæmotherapy.

Some 25–30 c.cm. of blood should be taken from a vein of the arm or foot and immediately reinjected in the buttock of the unaffected side. The syringe should be citrated before performing the operation.

He thinks that this procedure always stops cerebral hæmorrhage and limits its effects whether after cerebral trauma or after ordinary hæmorrhages.

The sooner it is done the better the results. It can be given as a preventive in arteriosclerosis and when transitory prodromal attacks occur. It can also be used to differentiate between cerebral hæmorrhage and cerebral softening.

The author does not pretend to explain the mode of action of autohæmotherapy, but maintains that the practical results of its administration are always good.

R. G. G.

[59] **The therapeutic effects of œstrogenic hormone preparations in certain cases of idiopathic epilepsy and in migraine.**—Richard W. Whitehead and Edwin E. McNeil. *Amer. Jour. Psychiat.*, 1935, **91**, 1275.

Here are presented the therapeutic results obtained in a selected series of 18 cases of epilepsy treated with œstrogenic substances (emmenin, theelin, theelol, and amniotin). Marked relief occurred in eight of the cases, all females. Partial benefit was got in five others, three of whom were males. Two females and one male failed to respond. A series of 12 selected cases of migraine is also presented, together with the results obtained by use of the above-mentioned hormone preparations. Six of these were markedly relieved, three were partially benefited and three showed no response. The possible rationale of the treatment is discussed. Alteration in the water balance produced by the autocoids used appears to be the most likely mechanism by which they were effective. No claim is made that a cure for epilepsy is discovered, but it is felt that the results obtained are significant enough to warrant further investigation in this field.

C. S. R.

[60] **A short report on conservative treatment in two cases of arachnoiditis spinalis circumscripta** (Kasuistische Mitteilung über die konservative Behandlung zweier Fälle von Arachnoiditis spinalis circumscripta).—C. H. de Leeuw. *Deut. Zeits. f. Nervenheilk.*, 1935, **137**, 72.

Two cases of spinal arachnoiditis could not be operated on for special reasons. An early complete recovery was obtained by diathermy treatment.

M.

[61] **The treatment of muscular dystrophy with gelatin.**—L. Stone and M. Abeles. *Jour. Nerv. Ment. Dis.*, 1934, **80**, 285.

Fifteen patients were treated with gelatin from which it was hoped that glycin might be extracted by the digestive tract. In some cases gastric upset

was noticed. Some increase in the strength and wellbeing of the patients was noted, but no striking results were obtained. The only advantage of giving gelatin rather than glycin is the cheapness of the former.

R. G. G.

Psychopathology

PSYCHOLOGY

[62] **The Rorschach test applied to children.**—MADELINE KERR. *Brit. Jour. Psychol.*, 1934, **25**, 170.

THIS investigation substantiates Rorschach's statement that colour-form answers measure affective instability, and primary-colour responses impulsiveness, usually pathological impulsiveness. The kinæsthetic and colour-answers together show the subject's type, his capacity for affective adaptation, for emotional stability and instability—in general, the balance of his emotional life. That the Rorschach test does give a good working knowledge of the subject's temperament as a whole is not doubted by anyone who has used the test. The qualitative aspect is even more important than the quantitative, as often the content of an abnormal subject's answers is full of their symptomatic tendencies shown both overtly and symbolically. It is claimed that the colour- and kinæsthetic responses are dependent on the unconscious for their content. These results and those of other investigators suggest that this panoramic view of the subject's temperament as a whole is an advance on the method of measuring temperament and intelligence separately.

C. S. R.

[63] **Types of sleepers : normal and abnormal.**—DONALD A. LAIRD. *Medical Record*, 1935, **142**, 13.

THIS is an analysis of the movements from hour to hour of 14 sleepers over a period averaging more than a month. Each shows evident individual differences. A gradual increase in movements from hour to hour through the night, which is termed crescendo sleep, is suggested as being the normal sleep form. Variation from this crescendo sleep curve which is prolonged by illness, susceptibility to illness or gastric distress, may offer a basis for searching hitherto unsuspected constitutional weaknesses or undesirable habit-patterns of individuals. A remarkable similarity in the sleep curve of pairs of brothers and sisters is also noted.

C. S. R.

NEUROSES AND PSYCHONEUROSES

[64] **The syndrome of neurotic anxiety : the somatic and psychic components of its genesis and therapy.**—WALTER MISCH. *Jour. of Ment. Sci.*, 1935, **81**, 389.

THE investigations of the writer started with the major anxiety attack. This somatic syndrome is composed of intense vasoconstriction of the skin (paræsthesias, sensation of cold, pallor), tachycardia up to 150, inhibition of salivation, cold sweating, mydriasis, arterial hypertonus up to 150 mm. (of mercury), and relaxation of the voluntary muscle system. This indicates a stormy excitation of the sympathetic system, which may be combined at the end with parasympathetic phenomena. It was found that this syndrome could be removed by choline preparations, which by their stimulating effect on the parasympathetic nerve produced an effect exactly the opposite to the anxiety syndrome : by an intramuscular injection of 0·1 c.cm. acetylcholine the anxiety attack can be stopped also in its psychical effects, and even chronic anxiety attacks can disappear after a few days by oral administration of the choline preparations pacyl or hypotan. We can therefore suppose that the fear of an anxiety neurosis arises primarily in a somatic way. The vasoconstriction here plays an important part, and the character of the anxiety syndrome corresponding to the adrenaline effect may be traced back to a primary action of the adrenal glands. Since some sexual damage is found, such as the inhibition of normal relief, and since the anxiety could be removed both by the prevention of this and by choline preparations, this confirms Freud's theory of the damming up of libido, and Reich's theory of the origin of anxiety in a sympathetic-toxic action of the sexual hormone.

The somatic genesis of neurotic anxiety can be designed in the following way. There is always a disturbance of the course of sexual irritation to be found. This results either from sexual abstinence caused by external or neurotic reasons, or from neurotic sexual hypæsthesia while relatively great libido is present, and leads, with a certain sympatheticotonic disposition, to a strong excitation of the sympathetic system. At this point the mechanism can be interrupted by choline medication. According to the working through of the state of sympathetic excitation there results either the syndrome phrenocardia, or, with corresponding psychic preparedness, the anxiety neurosis. If this continues for some time it can become fixated and psychically worked through so that anxiety can then also arise from the psyche. The somatic neurosis only lasts for a certain time and then becomes built over in a psychoneurotic manner so that then it may only be treated by a long-continued psychotherapy.

C. S. R.

[65] **The vestibular apparatus in neurosis and psychosis.**—P. SCHILDER. *Jour. Nerv. Ment. Dis.*, 1933, **78**, 1.

A LONG discussion of the functions of the vestibular apparatus and its reciprocal influence with consciousness. Disturbances of the vestibular apparatus may result from conflicts and dissociations in the personality while subjective experiences due to primary disturbances of the vestibular apparatus may complicate or distort various neuroses and psychoses. The general conclusions are that the vestibular apparatus consists of two different parts, the semicircular canals and the otoliths. Both deal with the perception of acceleration, the latter also with the perception of gravity. The vestibular apparatus is not only a perceptive organ, but also a reflex organ which reacts to movements and to positions of the head in space. There is a peripheral and a central vestibular apparatus. The central apparatus consists of the nuclei in the medulla oblongata, of primary cortical centres and of centres which are connected with the elaboration of the primary impulses in the parieto-occipital lobe. But the vestibular system is also under the influence of the personality of the brain function as a whole. In the first part of this paper the symptoms are discussed which occur in organic lesions of the vestibular apparatus.

The vestibular influence on the visual field is darkening of the field, narrowing of the field and scintillation. There is a difference between peripheral and central lesions.

There is a multiplicity of apparent movements which are only partially dependent on the nystagmic movements of the eyes. The apparent movements have a great tendency to transformation.

There is also the perception of direction which can be changed by vestibular lesions. There are also transformations from one plane to another. Micropsia may occur. Polyopia and micropsia belong also to the symptomatology of vestibular lesions. It seems that these vestibular changes can be unilateral in central lesions. They are homolateral to the side of the lesion. Also the haptic sphere is changed by vestibular lesions.

Homolateral weakness and homolateral troubles in sensibility belong also to vestibular symptomatology. Changes in tone and in reaction movements are well-known symptoms of vestibular lesions. Special importance is ascribed to the changes in the postural model of the body by vestibular influence. Under vestibular influence a part of the substance of the body may be dissociated from the rest of the body. Heaviness and lightness of the body in its subjective sense are largely dependent on the vestibular apparatus.

There are also changes in the vegetative system. Changes in consciousness are directly due to vestibular influence.

Optic images, tactile images, tactile and optic eidetic pictures can be influenced by vestibular irritation in a similar way as after-images. In hallucinations vestibular influences change the appearance and add move-

ments to the picture. In delirium tremens the multiplicity of hallucinations is brought in connexion with vestibular influence. Multiplicity of hallucinations, macropsia, micropsia, and dysmetamorphopsia, indicate a vestibular influence on hallucinations. The postural mode of the body is in the same way influenced in alcoholic psychosis in which the vestibular apparatus is affected as in organic neurological cases or in normals in which the function of the vestibular apparatus is changed. Vestibular changes disrupt the unity of the postural model of the body. The symptomatology of delirium tremens and alcoholic hallucinosis is considered from this point of view.

A case of barbital intoxication and a case of an eclamptic psychosis are studied from this point of view and the importance of the vestibular influence for the symptomatology of toxic psychosis is shown. But in psychosis the utilization and elaboration of the vestibular impulses in connexion with the activities of the whole brain are of special importance. The vestibular apparatus has a special function among the senses and is therefore in connexion with particular life experiences. Dysfunction of the vestibular apparatus is often the expression of two conflicting psychic tendencies. Giddiness occurs therefore in almost every neurosis. The neurosis may produce organic changes in the vestibular sphere. Giddiness is a danger signal in the sphere of the ego and occurs when the ego cannot exercise its synthetic function in the senses, but it occurs also when conflicting motor and attitudinal impulses in connexion with desires and strivings cannot be united any longer. It is as important from the psychoanalytic point of view as anxiety. The vestibular apparatus is an organ the function of which is directed against the isolation of the diverse functions of the body.

R. G. G.

PSYCHOSES

[66] **Heat production and heat control in the schizophrenic reaction.**—D. E. Cameron. *Arch. of Neurol. and Psychiat.*, 1934, **32**, 704.

The results obtained by observing the temperatures of schizophrenic and nonschizophrenic groups afford confirmation of the statement that heat production in the schizophrenic reaction is low. Approximately 10,000 temperature readings in 50 schizophrenic and 50 control subjects showed that the internal temperature in the schizophrenic group was throughout the day slightly lower than in the nonschizophrenic group, both groups being at room temperature, and there was evidence to show that at room temperature the mechanism of heat control in the schizophrenic group was more active than in the nonschizophrenic group. Findings on exposure to extreme cold suggest that the mechanism of heat control acts more sharply and more strongly in the schizophrenic than in the nonschizophrenic group. On the

other hand, exposure to extreme heat reveals no weakness in the mechanism of heat control in the schizophrenic group.

These findings are not consistently true for the individual subject, but only for the group.

R. M. S.

[67] **The parent-child relationship in schizophrenia.**—J. KASANIN, E. KNIGHT and P. SAGE. *Jour. Nerv. Ment. Dis.*, 1934, **79**, 249.

IN a series of 45 unselected cases of schizophrenia, maternal over-protection or rejection was present in 60 per cent. of the cases. Rejection was found in only two cases, with evidence coming from the patients themselves. In schizophrenia the over-protection frequently extends into the adult life of the patient and even into his hospital life after commitment.

The biological inferiority of the schizophrenic child is easily detected by the parents and serves as one of the principal causes of over-protection. The pre-schizophrenic child invites and solicits extra care and attention on the part of his parents. Over-protection establishes a vicious circle in the life of the schizophrenic child, because, on the one hand, the child needs the extra care for his development, but, on the other hand, receiving of this extra care hinders his final development, his emancipation from his parents, and his psychosexual development.

R. G. G.

[68] **Hashish psychosis** (Ueber Anaschá-Psychosen).—N. SKLIAR. *Allg. Zeits. f. Psychiat.*, 1934, **102**, 304.

PSYCHOSES resulting from the taking of hashish are of the nature of exogenous reactions. No particular psychosis is characteristic of hashish. Frequently a state of depression is observed, and occasionally cases of schizophrenia. It is doubtful if the schizophrenia is really a result of hashish addiction.

M.

[69] **Post-traumatic psychosis.**—MORRIS J. COHEN. *South African Med. Jour.*, 1935, **9**, 15.

MENTAL disorder as a sequel to trauma, especially injury to the head, is not a frequent occurrence. A psychoneurosis rather than a psychosis is the more usual sequel. Here, cases of psychosis after injury are recorded and some attempt is made to classify them into types. (1) Injury may bring to the fore a latent infective psychosis, which may have lain dormant for an

indefinite period. (2) Injury may accentuate and caricature the usual mental 'make-up' of an individual, leading to psychosis of the type generally associated with the individual's bodily build. (3) Injury may cause a complete change in the personality and behaviour of the individual. (4) In old age injury may precipitate a senile dementia.

C. S. R.

[70] **The blood sugar in relation to emotional reactions.**—JOHN C. WHITEHORN. *Amer. Jour. Psychiat.*, 1934, **13**, 987.

IT seems most consistent with our present knowledge and the observations here reported to schematize the relationship of carbohydrate metabolism to emotional reactions in psychotic persons thus: emotional excitement produces rarely, if at all, any rise in the fasting blood sugar. Melancholic reactions appear to depress somewhat the insulinogenic function of the pancreas. Ordinarily this depression of function is demonstrable only as a moderately delayed demobilization of glucose, under a load; so that *fasting* blood sugars fall within normal limits except in those few persons, usually older than 45 years, whose capacity is already somewhat limited by diabetes or other organic disease.

C. S. R.

[71] **Achlorhydria in the psychoses: with special reference to coincident anæmia.**—RUBY O. STERN. *Jour. of Ment. Sci.*, 1935, **81**, 358.

A SERIES of 300 psychotic patients was investigated with reference to the occurrence of achlorhydria as compared with normal individuals. A percentage of 10·6 were found to be achlorhydric by the fractional test-meal method. This percentage was four points lower than that recorded by other observers for large numbers of healthy people of approximately the same age. The conclusion was therefore reached that achlorhydria does not occur more commonly among psychotics than among the sane. There was no preponderance of achlorhydria in any particular psychosis, the higher percentage apparently occurring in states of depression being due to the greater age of patients exhibiting this psychosis. The two chief forms of anæmia which are particularly associated with achlorhydria are Addisonian (or pernicious) anæmia on the one hand, and the idiopathic, hypochromic anæmia of Witts on the other. Numerous investigators have focussed their attention on the frequency with which anæmia occurs in achlorhydric subjects. In this series, six cases were found among the 32 cases of achlorhydria, i.e. 18·7 per cent. All of these were hyperchromic in type. Four were obvious cases of pernicious anæmia. The other two belonged to a group to which little attention has been drawn, namely, a hyperchromic anæmia which occurs in the elderly,

usually, but not always, associated with achlorhydria, while peptic activity remains good.

C. S. R.

PSYCHOPATHOLOGY

[72] **Suicides and homicides in their relation to weather changes.**—C. A. MILLS. *Amer. Jour. Psychiat.*, 1934, **91**, 669.

A STRONG suggestion of storm effect is seen in the distribution of suicides and homicides in North American cities. The rates are not highest where industrialization is most advanced, but rather where barometric pressure and temperature changes are most frequent and severe. Suicides show a definite time-relationship to weather changes as high- and low-pressure centres approach and pass by. With falling pressure and rising temperature, suicides rapidly rise. Most peaks in frequency occur at the time of a low-pressure crisis. With rising pressure and falling temperature few suicides occur. Migration from the South into the more stormy North is accompanied by a marked rise in suicides among negroes. Figures are not available to show whether the same is true of the whites. Increased economic stress in the North may, of course, play a large part in this rise. These findings indicate the likelihood that the wide shifts in temperature and pressure that accompany North American storms may play a considerable part in producing the mental instability of such populations. Much of this storm effect probably works through increasing the tempo of life and the economic competition. There probably remains, however, a distinct disturbing action of the storm changes as they affect the body directly.

C. S. R.

[73] **Pain of emotional origin.**—LEE T. CADY. *Jour. Missouri State Med. Assoc.*, 1935, **32**, 190.

FROM the study of cases he records and discusses, the author concludes that it appears that suppressed or unrelieved resentment is capable of causing pain in a manner suggestive of a conditioned reflex. From this viewpoint, psychogenic pain must be considered as an emotional release rather than as an escape, in the usual interpretation, and not necessarily having an unconsciously protective aim. The sensitive, often negativistic, egotistical and egocentric personality, with or without unconscious social compensation, is susceptible to the development of pain from an emotional (psychogenic) origin. The pain may be relieved by ego-compensating diversion or by the social relief of the cause of the underlying emotional conflicts.

C. S. R.

[74] **Emotional states of general paresis.**—PURCELL G. SCHUBE. *Amer. Jour. Psychiat.*, 1934, **91**, 625.

HERE a study of the emotional symptom-groupings of 300 cases of general paresis is presented. It is pointed out that the general paretic is, usually, not only a case of cerebral syphilis, but a case of cerebral syphilis plus a psychosis or psychoneurosis. The general paretic should be treated not only for cerebral syphilis, but also for the existing abnormal emotional state by recognized therapeutic measures.

C. S. R.

[75] **Mental state of the epileptic patient.**—E. M. BRIDGE. *Arch. of Neurol. and Psychiat.*, 1934, **32**, 723.

RECOGNITION of the nature and significance of the mental state of the epileptic person has far-reaching implications. In the first place, it should be recognized that there exists a group of patients, formerly classed as suffering from idiopathic epilepsy, in whom psychogenic factors are of the utmost importance in inducing the abnormal physiological response of convulsions. In such instances routine treatment with drugs, diets and surgical intervention is of less importance than properly directed adjustment of the problems of the mind. Similarly, time, energy and optimism would be wasted if one attempted to treat solely by mental hygiene the patients in whom the dominant alteration of physiology depended on local scars of the brain, abnormalities of the cerebrovascular supply, disturbances of the formation and drainage of the cerebrospinal fluid, repeated bouts of fever and tetany. Only as one is able correctly to evaluate the various disturbances of function which in a given person bring about the symptoms now spoken of as epilepsy can therapy be direct, specific and fruitful.

In the second place, the popular conception of an inherited deteriorating personality as the underlying cause of epilepsy has resulted in great misunderstanding and injustice both to the patient and to his family. The fear, prejudice and even aversion which a person with epilepsy so often encounters when seeking education, employment or entrance into social activities can be attributed in considerable measure to such an attitude toward the disease. It is not uncommon to encounter families of excellent stock who dread to have the children they desire, because of the possibility of transmitting to them the taint of epilepsy. A family skeleton of epilepsy is a social disgrace.

Finally, the treatment which patients with epilepsy receive from physicians is no doubt influenced by the hopelessness which is bound to result when hereditary aspects of the disease and the futility of curative measures occupy as prominent a part in the literature and teaching of epilepsy as they have in the past. The attitude of society toward epilepsy

deserves study, for only as a more rational view of the disease is taken by the public in general and the medical profession in particular, can the epileptic patient receive the therapeutic aid and the opportunity for normal existence which every human being deserves.

R. M. S.

[76] **On depersonalization.**—W. MAYER-GROSS. *Brit. Jour. Med. Psychol.*, 1935, **15**, 103.

AFTER examining the theories of depersonalization from partial facts and the clinical data as a whole, the author concludes that the symptoms constitute a nonspecific syndrome occurring in illnesses of different kinds during the stage of minor intensity. Its rarity in gross organic psychosis and toxic states is remarkable. Most patients have a correct insight into its morbid character and here depersonalization is close to the obsessional phenomena with which it is not seldom associated. It differs from obsessions in its generalizing tendency, for it is prone to extend over all psychic experiences without exception. The fact that younger people only are affected may account for the infrequency of delusional development which is a dominating factor in psychosis in later life. It is astonishing that depersonalization is so relatively rare. In every early psychosis or neurosis the personality and the manner of looking at the outer world are changed. Why is this change observed by the patient himself only in certain cases? Why does it bear such a paradoxical appearance in depersonalized subjects? The answer can only be found by viewing the whole syndrome as a preformed functional response of the brain. It is a characteristic form of reaction of the central organ which can be set going by different causes. Such a response can be put in the same category with other nonspecific preformed mechanisms as the epileptic fit, delirium, states of semiconsciousness, catatonic states, etc. From the point of view of the organic foundations of the syndrome one must refer to its similarity to sensory disturbances of the thalamic type. Furthermore, the relations to anosognosia and to Anton's symptom of failing perception of one's own defect are noteworthy. For future study it would seem that the most accessible way at present is to make use of the refined methods of modern physiology for studying sensory perception.

C. S. R.

[77] **Juvenile paretic neurosyphilis studies.**—WILLIAM C. MENNINGER. *Amer. Jour. Psychiat.*, 1935, **91**, 1413.

THE most typical mental picture seen is characterized by confusion, mental regression to simple dementia, inadequate emotional response, and a restless purposeless behaviour. The only distinct clinical type of mental reaction is

the simple deterioration. Very rarely are cases depressed or agitated or euphoric over a sufficiently long period of time to establish them as a clinical type of reaction. Perceptual disturbances are not conspicuous in the early picture, and visual and auditory hallucinations are reported in about 5 per cent. of the cases. Intellectually the child always regresses and the progression to dementia is the most characteristic feature. Delusions of some type are found in about 19 per cent.; 9·5 per cent. were expansive and 4·3 per cent. were paranoid. Memory loss is a common finding, while emotionally the patient's response is inadequate and dull. Euphoria, at some stage of the illness, is reported in 17·6 per cent. and depression in 23·6 per cent. Excited periods, almost always of a transient character, were present in 23·6 per cent., and these were often associated with periods of irritability. In the field of volitional activity, the outstanding symptom is restlessness. Misconduct, either as unruly or resistive behaviour, destructiveness, antisocial activity, or masturbation, appeared in about 30 per cent. of all cases. Catatonic behaviour, with negativism, mutism and automatism is manifest in about 5 per cent. Sleep disturbance, either as insomnia or somnolence, is mentioned in only 4 per cent., but probably occurs more frequently.

C. S. R.

[78] **A tuberculous survey in mental hospitals.**—BERNARD T. MCGHIE and GEORGE C. BRINK. *Amer. Jour. Psychiat.*, 1934, **13**, 975.

A HIGHER percentage of tuberculous disease is found in patients with mental conditions than in the patient population in general hospitals. Tubercular infection has taken place in a higher percentage of mental defective children than in apparently healthy school children. Temperature records are of value, but other possible causes of pyrexia should be eliminated. Most excited and some depressed mental cases have pyrexia of unexplained origin from time to time. Sputum is difficult to obtain from a large proportion of mental cases. Weight charts should be kept in all suspected cases. The apathy and indifference to physical discomfort are found to such an extent in so many patients with mental disorder that cough and expectoration are frequently absent, and loss of weight and strength with pyrexia are often the first signs indicating the advisability of chest investigation. Because of poor co-operation in physical examination in many, an X-ray of the lungs is essential before the probability of tuberculosis can be eliminated. An intracutaneous tuberculin test properly done is of value in determining the presence of infection, especially in the younger age groups. No reaction to 1 mg. of tuberculin in $\frac{1}{10}$ c.cm. definitely rules out such possibility. However, for all practical purposes a negative reaction to $\frac{1}{10}$ mg. in $\frac{1}{10}$ c.cm. solution may be accepted as indicating the absence of infection.

C. S. R.

[79] **On a special form of severe mental deficiency accompanied by myosclerosis** (Su di una speciale forma di grave frenastenia accompagnata da miosclerosi. Contributo allo studio dei disturbi psichici che accompagnano le miopatie).—C. BERLUCCHI. *Riv. di pat. nerv. e ment.*, 1935, **44**, 453.

IT has long been recognized that the myopathies are diseases which are not confined to the muscular system but show disturbances in several organs and systems. Psychical anomalies are among the most frequent of these disturbances. Usually these are characterized by slight mental deficiency and a general picture of bodily and mental infantilism with a diffuse endocrine disturbance which does not conform to the picture of a syndrome attributable to any one gland. There is almost always some sexual insufficiency. There may also be circulatory disorganization which may even result in hemiplegias and aphasias. On the other hand, there are some cases which show only slight or no modifications in normal physical and mental development.

In a small group, serious mental deficiency may be met with. In these there is usually a rapid course with the chief affection in the lower limbs and with a tendency to contraction in flexion. Pseudohypertrophy is slight. These cases are accompanied in the family by other cases of myopathy and of infantilism and so may be regarded as a special form of idiocy, especially since the pathological changes are found to be similar in each member. The deficiency is obvious from the earliest years, but the myopathy is only demonstrable after the seventh year.

In addition to the deficiency which amounts to idiocy or imbecility there is a serious imbalance of the vegetative system with a tendency to vasomotor crises which may even result in death.

Pathological examination shows that the chief lesions are in the muscles and that the pyramidal tracts and anterior horn cells are little if at all affected.

Examination of the brain does not show such abnormality as is usually found in an equivalent degree of imbecility or idiocy. The condition is somewhat reminiscent of the findings in cretinism. For these reasons it seems permissible to regard such cases as a special form of idiocy.

R. G. G.

[80] **The ætiology of temporary amnesia.**—FREDERICK H. LEAVITT. *Amer. Jour. Psychiat.*, 1935, **91**, 1079.

THIS investigation showed that many causative factors may underlie the production of amnesia and loss of identity. In the 104 cases studied, the principal classifications were organic brain disease, functional mental disease, the psychoneuroses, exogenous and endogenous toxæmias, epilepsy, and malingering. Males constituted the great bulk of the cases, with the excep-

tion of the psychoneurosis-hysteria and the malingering group, where females predominated. Among the negro race, females constituted the great majority, very few negro males developing amnesia. The most melodramatic and interesting cases were those of hysterical or epileptic genesis. In children, the condition occurred only when constitutional mental inferiority was present. The ratio of amnesia cases to total cases admitted in an acute psychopathic hospital service was 1 : 120.

C. S. R.

[81] **The psychiatric study of hyperthyroid patients.**—A. CONRAD. *Jour. Nerv. Ment. Dis.*, 1934, **79**, 505.

A HISTORY of psychic trauma has been obtained in 94 per cent. of cases of Graves' disease by a method of examination which stresses (*a*) the investigation of new developments in the life situation and personal relations at the time of onset of hyperthyroid symptoms; and (*b*) the evaluation of the unconscious conflicts by the appearance of signs of emotion during the history-taking.

A flushing of the neck and lower face is described which has shown a high degree of specificity in leading one to the conflict over which the patient has 'decompensated.' Frequently noted in mild form if the patient is interviewed in a good light, the degree of severity shows some correlation with the elevation of the B.M.R. and also with the violence of the trauma recalled.

Though all degrees of variation in intellectual and economic self-reliance are observed among the women, the majority show dependence emotionally on the mother or mother surrogate and find any threat to such protecting mother-care, or to approval by the mother, intolerable. Another distinct group is unable to bear the burden of maternal responsibility such as nursing of dependents. In some cases both these patterns appear, in others there in no trace of one, but a clear instance of the other. A small number show, with or without these, fear of coitus, fear of pregnancy and delivery, and a fear of specific illness among which heart disease and cancer figure conspicuously, though these in most instances seem terrifying because feared by or fatal to a mother-person.

The men also show fear of deprivation of mother-comforts, but the fear of loss of approval is less specific, appearing as fear of public disgrace. The fear of illness includes fear lest the wife suffer as did the mother, from disease, economic neglect or unwanted pregnancy.

The emotional pattern of these personalities may be explained by hypothesizing a pathological development, often a frustration, in the normal attempt to establish independence of the mother. In uncomplicated Graves' syndrome the relation to other people shows no pathology, whereas this

also is involved in those cases in which there is an associated hysteria or paranoid tendency.

It would therefore seem, from the incomplete study made, that the conception of Graves' syndrome must be extended to include susceptibility to specific emotional traumata and a characteristic personality pattern.

Indication is for therapy to be directed toward increasing both the stability of autonomic function (as by partial thyroidectomy) and the self-confident independence of the personality. In so far as this is impossible of expectation the maximum of physical and emotional shelter becomes imperative. Insight into the specific threats to which each patient is sensitive aids in the establishment of security from within and from without.

R. G. G.

[82] **Psychic manifestations associated with hyperthyroidism.**—HAROLD F. DUNLAP and FREDERICK P. MOERSCH. *Amer. Jour. Psychiat.*, 1935, **91**, 1215.

HERE there is an attempt to analyse the mental phenomena in 134 cases of hyperthyroidism and to determine whether the mental factors can be directly attributed to the hyperthyroidism. Though there is no type of psychic reaction that is characteristic of hyperthyroidism, three types of mental reaction were found to be dominant ; viz., toxic exhaustion psychosis, acute delirium reaction, and manic-depressive reaction. Cases of the two former constituted 91 per cent. of the material. The toxic state occurred most frequently in the cases of exophthalmic goitre, and the acute delirium was noted in a high percentage of the cases of hyperfunctioning adenomatous goitre. The cases of manic-depressive reaction constitute the third large group and many gave histories of previous mental disturbance. Undoubtedly, the nervous stability of an individual is a dominant factor in determining the occurrence of mental manifestations. Either the existence of a state of hyperthyroidism, or an operative procedure, may serve as a means of precipitating a severe mental reaction in a mentally unstable individual.

The administration of compound solution of iodine in adequate doses in the preoperative and postoperative treatment of exophthalmic goitre has prevented or controlled crises, and hence has reduced the incidence of mental reactions. Unfortunately, such administration has not produced similar results in cases of hyperfunctioning adenomatous goitre.

C. S. R.

[83] **The brain changes in chronic alcoholism and Korsakow's psychosis.**—F. J. WARNER. *Jour. Nerv. Ment. Dis.*, 1934, **80**, 629.

SEVEN cases are described. In five, simple types of parenchymal degeneration were seen, consisting of chronic changes with pigment atrophy or

chromatolysis. The number of neurons was reduced, but focal necroses were seldom present. In two other cases which showed Korsakow's syndrome, areas of arteriosclerotic softening were found, but there was no constant localization of the pathological changes. It does not seem justifiable to state that there is a selective degeneration present in chronic alcoholism, or any correspondence between severity of the clinical symptoms and the degree of corresponding brain lesions.

R. G. G.

[84] **The blood glutathione (GSH) level in mental diseases.**—ARTHUR T. BRICE. *Amer. Jour. Psychiat.*, 1935, **91**, 1389.

THERE appears to be a statistically highly significant difference in the blood glutathione (GSH) level between groups of mental patients and adequate individuals. This difference is greatest in catatonic dementia præcox. It is also marked in hebephrenic and paranoid præcox, and in general paresis. It is less marked, but still statistically significant, in manic-depressive psychosis. In the small number of cases of epilepsy examined it was not statistically significant. Diurnal variation and exercise have been ruled out as influences affecting the validity of conclusions based on the data accumulated in this study.

C. S. R.

PROGNOSIS AND TREATMENT

[85] **The Briggs law of Massachusetts.**—WINIFRED OVERHOLSER. *Amer. Jour. Psychiat.*, 1934, **91**, 585.

THIS law of 1921 provides that any person indicted for a capital offence or any person indicted or bound over for trial in the Superior Court who has been previously convicted of a felony or indicted more than once for any offence shall be reported to the Department of Mental Diseases for examination, 'to determine his mental condition and the existence of any mental disease or defect which would affect his criminal responsibility.' It may be said that by providing an impartial and competent mental examination of certain legal classes of persons accused of crime in advance of trial, it has furnished to the court information as to the defendant's mental condition, and by so doing has avoided the expense of numerous costly trials; it has reduced to a negligible number the 'battles of experts' which have in the past brought discredit upon psychiatric expert testimony; it has protected the rights of the psychotic or otherwise mentally incompetent accused who might without it have gone unrecognized; it has served in numerous cases to indicate a disposition which was more desirable socially and more in accord with

justice and fairness to the defendant than would have been the routine and mechanically determined one that would ordinarily have been meted out; finally, it has aided in the process of educating judges and the bar generally to a realization of the value of psychiatry as an aid in the individualization of justice.

C. S. R.

[86] **An experimental study of the control of the mechanism of speech, and in particular of that of respiration, in stuttering subjects.**—GEORGE SETH. *Brit. Jour. Psychol.*, 1934, **24**, 375.

IN the series of experiments described here the question at issue was that of the relative efficiency of stutterers and normal speakers in voluntary control of the mechanism of speech in situations in which speech itself was not required. The results on respiratory control indicate that the stuttering speakers are inferior to the normals in their ability to maintain voluntarily the rhythm or regularity of the performance. The measures of regularity for the two groups of subjects in this type of performance showed a difference which was more than eight times its probable error. This result affords striking confirmation of the findings of Blackburn from experiments of a similar kind. In voluntary control of the lips and jaws, although the stutterers are once more inferior to the normal subjects, the differences between the groups are not to be considered significant. These results appear to indicate: (1) That although the ordinary rest-breathing of the stutterer may show no abnormality, there may well be a specific deficiency in his respiratory control; and (2) that respiratory disturbance in the stutterer is not confined to or induced by those social situations in which communication by speech is demanded by the sufferer. It was present under the conditions of these experiments in which speech was explicitly eliminated and the social stimulus reduced to a minimum.

C. S. R.

[87] **The psychopharmacology of sodium amytal.**—M. W. THORNER. *Jour. Nerv. Ment. Dis.*, 1935, **81**, 161.

A STUDY of the effects of sodium amytal in some patients suffering from abnormal mental reactions is undertaken. It would seem to have an anti-inhibitory effect through depression of the activity of some of the neurones of the cerebral cortex. In some psychotic reactions, such effects are therapeutically undesirable. The effect of the drug is to release the patient from inhibition symptoms such as mutism and catatonia, but this is only temporary.

R. G. G.

[88] **A comparative study of some of the changes produced by various types of drugs in schizophrenic patients.**—E. F. Gildea, H. E. Himwich, O. E. Hubbard, and J. F. Fazikas. *Amer. Jour. Psychiat.*, 1935, **91**, 1289.

Evidence here has been presented which indicates that the favourable changes in the behaviour of catatonic schizophrenics following the intravenous injection of sodium amytal are not dependent on the dilation of the cerebral vessels, on the rise in the CO_2 content, or a fall in the *p*H in the arterial blood. Narcosis produced by a number of different drugs was not followed by any change in symptoms such as occurred after narcosis by sodium amytal. The changes in symptoms which followed this drug administration were found to have a different and more favourable character and a longer duration than those which were elicited occasionally by such severely disturbing experiences as anoxæmia, respiring high concentrations of CO_2 or other types of treatment which were necessarily painful. Since sodium amytal is a drug which acts primarily on the brainstem, it is suggested that its effectiveness in rousing catatonic patients from stupor lends some support to the hypothesis that the symptoms of this disease are due in part to a dysfunction of the brainstem.

C. S. R.

[89] **On the action of certain drugs in schizophrenia.**—H. C. Beccle. *Jour. of Ment. Sci.*, 1935, **81**, 46.

Thirteen cases of various types were treated with a combination of gonadal hormones and the aphrodisiac drug, yohimbine. Of the nine male cases so treated, seven were discharged as recovered or greatly improved and one gave no response whatever. Of four female cases, three recovered and one was definitely made worse. Gonadal extracts appeared to be valuable therapeutic agents in the schizophrenic psychoses, with particular emphasis on the female follicular hormone. It is possible that in spite of the absence of overt indications of sex-gland hypoplasia such a condition may be present and may be an important factor in preparation of the soil for this psychosis. The higher recovery rate in the female cases may be purely coincidental, or more probably may be due to the fact that œstrin is a substance of known potency and chemical composition, whereas testicular extracts are variable in their activities. The drug yohimbine acts as a general central nervous tonic, has a specific influence on the genital apparatus, and appears to enhance synergically the action of the gonad hormones. No untoward symptoms were observed after administration of these preparations, either orally or by subcutaneous or intramuscular injection, the treatment then being quite safe. The blood phosphorus level appeared to be distinctly higher

in cases of schizophrenia than in the normal person, improvement in the mental condition being followed by a fall in this level (using the inorganic fraction as an index). This index appeared to be of value in controlling the treatment.

C. S. R.

[90] **The treatment of schizophrenia with placental blood [Hæmoplacentar therapy of schizophrenia]** (Meine ersten Ergebnisse der Behandlung von Schizophrenien mit Plazentablut [hæmoplazentäre Therapie der Schizophrenie]).—J. S. GALLANT. *Münch. med. Woch.*, 1934, **81**, 752.

THE blood of the placenta obtained by cutting the umbilical cord on the placental side was injected at intervals in patients suffering from schizophrenia. In nine cases (24 per cent.) a remission took place, 20 cases (54 per cent.) improved and eight cases (22 per cent.) remained stationary.

When one considers that a certain number of cases of schizophrenia improve spontaneously the results of the treatment described are not convincing.

M.

[91] **Sustained sleep therapy with diallylbarbituric acid in psychiatry.**—A. B. MAGNUS. *Jour. Nerv. Ment. Dis.*, 1934, **79**, 286.

THIRTY-EIGHT cases are reported out of an experience with 85 treatments of sustained sleep therapy, for a period of nearly four years.

Sustained sleep therapy is a valuable method in manic-depressive psychosis, in certain types of schizophrenia and in psychoneurosis. Of the other groups, too few were available, or the observations were not complete enough to draw definite conclusions. The method employed is a modification of the one used in the Burgholzli Clinic, consisting of administering diallylbarbituric acid rectally for a period of about ten days. In the prenarcotic stage dial is given per mouth and occasionally intramuscularly when indicated. During the narcotic stage morphine-scopolamine is given on the third day of the treatment and continued thereafter now and then, to lessen the possibilities of acquiring a tolerance to the dial.

'Narco-sustained' therapy is not without danger. The dangers are lessened by carefully eliminating contraindications, by maintaining a light state of sleep and by employing a specially trained nursing personnel. The quality of sleep has no bearing on the ultimate clinical outcome; lightly narcotized cases with frequent periods of wakefulness have shown equally good results. In the post-narcotic stage lasting for three days or over the

patient is conscious but his memory for recent events remains clouded and retention is poor. Situational conflicts are often clearly revealed and confabulations are not infrequent. Most cases show beneficial effects in some manner. Long-standing deteriorated cases respond slightly, if at all. Among the improved some are able to resume their former occupations, at least in part, outside of the institution. Involutional cases responded poorly.

R. G. G.

[92] **An investigation into the after-histories of discharged mental patients.** —L. H. Wooton, R. W. Armstrong and Dorothy Lilley. *Jour. of Ment. Sci.*, 1935, **81**, 168.

The authors, from their study, come to the following conclusions. In many cases an isolated attack carries with it a favourable prognosis with little tendency to recurrence. There appears to be a 'danger period' about a year after discharge when the tendency to relapse is maximal. After this the probability of recurrence tends to diminish, except in the case of schizophrenics. Cases of dementia præcox show the same 'danger period' at the end of a year, and in addition a further critical time about a year later. The importance of pregnancy or the puerperium as a precipitating factor in an attack of insanity is questioned. In view of these findings a regular follow-up of discharged cases appears desirable in order to ensure any necessary treatment before the psychosis becomes fully established.

C. S. R.

[93] **Sexual sterilization. Four years' experience in Alberta.**—C. A. Baragar, Geo. A. Davidson, W. J. McAlister and D. L. McCullough. *Amer. Jour. Psychiat.*, 1935, **91**, 897.

The Sexual Sterilization Act of Alberta was assented to in March, 1928. Up to the end of 1933, 288 cases—87 males and 201 females—had been passed by the Eugenics Board. Of these 206—48 males and 158 females—had at that time been operated on. These operations—a vasectomy or salpingectomy—have been followed by no serious sequelæ. No complaints have been received as to any change in libido or sex satisfaction, and none are expected. Of the 288 cases, 54·2 per cent. were diagnosed as mentally defective, 12·5 per cent. as mental deficiency with psychosis, and 30·2 per cent. as otherwise psychotic, while 3·1 per cent. were borderline cases. Social problems, such as immorality, illegitimacy, delinquency, dependence, partial or complete, were prominent features in many of the histories. Contrary to frequently expressed fears there is at present no evidence that sterilization will

lead to promiscuity or a lowering of moral standards. Facts indicating a hereditary taint or predisposition, in many cases to a striking extent, were found in 60·8 per cent. of cases. Sexual sterilization seems a logical and acceptable method of coping with certain problems of mental disease and defect.

C. S. R.

Reviews and Notices of Books

Les Encéphalites Psychosiques. By Dr. L. Marchand and Dr. A. Courtois. With a Preface by Dr. E. Toulouse, and 31 microphotographic illustrations. Paris: Librairie E. Le François. 1935. Pp. 144. Price 25 fr.

By the term 'psychotic encephalitis' is meant an inflammation of the brain that reveals itself solely by mental symptoms. These generally take the form of acute confusion, delirium, hallucinosis, and other features of a toxic psychosis; neurological symptoms are lacking. Pathologically, the lesions are partly degenerative, partly inflammatory; they are in no way specific, yet they are quite definite. There is no perivascular demyelination, and little glial reaction. The mesoderm, however, reacts, while the parenchyma is damaged. On the clinical side the authors draw particular attention to the blood urea, which in acute cases always rises and is regarded by them as constant and characteristic—so much so that they use the term 'encéphalite psychosique aiguë azotémique.' Subacute and chronic cases are also known; their syndromes can be schizoid, paranoid, manic-depressive, hebephreno-catatonic, etc.

The authors rely on pathological anatomy to show the foundation of the symptoms, but since they admit causation is multiple it is evident that any correlation of syndromes and lesions is impossible; the various mental symptoms they describe as occurring in subacute and chronic cases can also develop in cases where the lesions specified are not found. They have done well, however, in directing attention to the fact that some forms of encephalitis are accompanied by symptoms of the psychical series alone. The explanation of this interesting peculiarity is still obscure.

Nouveau Traité de Psychologie. Edited by Georges Dumas. Vol. IV: Functions and General Laws. Paris: Felix Alcan. 1934. Pp. 528.

Among the various fine articles that enrich this fourth volume of the *Nouveau Traité de Psychologie* we may allude in particular to that on Memory, by Henri Piéron, whose work on the borderland of brain and mind is known to all neurologists; on Symbolisation, by the editor; on Psychological Tension, by Pierre Janet; and on Sleeping and Waking, by Ed. Claparède. The last of these discusses the different theories of sleep now in vogue, and enlarges on the biological theory of its writer, according to which sleep is an

active, not a passive, state; we do not sleep because we are exhausted, or 'toxic,' but we sleep in order not to be exhausted, toxic, etc. Sleep is related to fatigue, but is not ordered by fatigue. An active function, sleep cannot be ascribed to a simple anabolic neurosympathetic process, accompanied by cortical inhibition; it is much more complex, being a function of the entire organism. The biological theory accounts for partial sleep and for seasonal variation more readily than others. Sleep is virtually an 'instinct.' The article on symbolization is graphically written and deeply interesting, especially perhaps when it deals with the language of passion and of mysticism. The style is lucid, the matter fascinating, the attitude of the writer philosophic and critical.

Textbook of Clinical Neurology. By Dr. Israel S. Wechsler, New York. Third edition, reset. London and Philadelphia: W. B. Saunders Co. 1935. Pp. 826. Price 30s. net.

On previous occasions we have reviewed this book, whose third edition has now appeared after an interval of four years. In his preface Dr. Wechsler says that 'hardly a page has been left untouched'—a fact that bears witness to the strides that are being taken by present-day neurology. Apart from a variety of improvements and alterations as compared with earlier editions, this volume is enriched by a chapter on the history of neurology, some 40 pages long. Not only is it very well done, but perusal of it must convince many who have given little thought to the matter that numerous disease-states and syndromes received proper description long before the 'original' contribution of this or that 'modern'—as a single instance, acromegaly was described in detail by de la Touche in 1772. We have noticed one or two minor inaccuracies which in no way detract from the general value of this chapter. For the purpose in view, the book can once more be heartily recommended.

Benign Encapsulated Tumours in the Lateral Ventricles of the Brain. By Dr. Walter E. Dandy, Baltimore. London: Baillière, Tindall and Cox. 1934. Pp. 189. Price 20s.

The latest neurosurgical monograph by Professor Dandy is devoted to the study of encapsuled tumours of the lateral ventricles, which, as he says, come from 'the last secret abodes' of tumours in the brain. The work of some 15 years is represented in this slim volume, and its author specifies the technical advances of that period as comprising the electrocautery, avertin anæsthesia, and continuous suction. Clinically, the work is based on material derived from 40 cases (the author's own 15, and the remaining 25 from the

literature). The symptoms are various, but hardly helpful to a localizing diagnosis, with the exception perhaps of hemiplegia and hemianæsthesia. The observer has to rely on the positive evidence furnished by ventriculography more than on anything else; ordinary X-ray films are valueless except when calcification is present. In not one of the 40 cases was a correct clinical diagnosis made from the examination of the nervous system. Dr. Dandy describes at length the way to interpret the dislocation and deformation produced in the ventricular system by the tumours. The operative mortality has been 20 per cent. Pathologically the new growths have belonged to different classes (adenoma, fibroma, angioma, papilloma, and others whose histological status is uncertain).

Des Reflexes Conditionnels. By Professor G. Marinesco and Dr. A. Kreindler, Bucarest. With 10 plates. Paris: Felix Alcan. 1935. Pp. 170.

THE doctrine of the conditioned reflex, as conceived and elaborated by Bechterev, Pavlov and their pupils and others, has already been extended from the physiological to the psychological field. There is now in being a psychology of reactions which naturally enough has been as much disputed as accepted, if not more so. This psychology claims to interpret behaviouristic phenomena without reference to introspection and analogy; and whether it be legitimate or not, Professor Dumas (who contributes an introduction to this work) is right in saying that the new direction given to psychology is full of promise, inasmuch as use is made of objective observations, and this brings the study into line with the controlled experiments that are common to physiology, physics, and chemistry.

The contribution under review deals first with the underlying mechanism of conditioned reflexes, i.e. the actual morphological evolution of the neuraxis; next with the organization of conditioned reflexes in the infant; and finally with the application of the doctrine to certain clinical problems of neurosis and psychosis. It embodies much original research, anatomo-physiological, and clinical, and should be read by all who are interested in this new development.

Étude Clinique de la Maladie de Pick. By Dr. Marcel Caron. Paris: Vigot Frères. 1934. Pp. 250.

DR. MARCEL CARON has written an able and comprehensive treatise on Pick's cortical atrophy, a morbid state that is expressed clinically by what is often termed a presenile psychosis. He comments on the poverty of articles dealing with Pick's disease in French medical literature, and his own treatise

has helped to fill the gap, except perhaps so far as the pathology of the affection is concerned. Dr. Caron gives a succinct resumé of pathological findings, but is more occupied with the clinical side—as indeed the title of his work implies. He furnishes the reader with a preçis of scores of cases from the literature on the subject, in addition to others of his own, and prints a good bibliography. There are a few clinical and pathological illustrations, and a useful synoptic table of all the reported cases, giving the syndromes in accordance with the site of the major lesions.

L'Olive Bulbaire. By Dr. Pierre Mareschal. With a Preface by Professor Georges Guillain. Paris: G. Doin. 1934. Pp. 217. Price 40 fr.

THIS clearly written, methodically arranged and well-illustrated monograph is a model of what such contributions to neurology should be. The author has made a complete study of the bulbar olive in all its aspects—anatomical, onto- and phylogenetic, physiological, and physiopathological. He states his conclusions clearly, gives reasons for being undecided in respect of this or that point, and suspends judgment, when there is need, in a cautious and truly scientific way. He shows that the olive is but a part of a 'vast system' that has to do with subcortical sensorimotor integration, and is careful to avoid premature localization within this system or attribution of symptoms to one part of it alone. Thus he is critical of views assigning verbal articulation, and maintenance of the erect posture, to olival function; and will go no further than to allow that the structure seems to play a capital rôle in the pathogenesis of so-called palatal nystagmus, and of the more general group of palato-pharyngo-laryngeal myoclonias.

Dr. Mareschal is to be congratulated on his production, which is a valuable addition to the literature and can be studied with profit by everyone interested in the finer anatomy and physiology of the nervous system. The bibliography at the end of the book extends over nearly 20 pages.

L'Impuissance Sexuelle chez L'Homme. By Dr. M. Palazzoli. With a Preface by Professor Legueu. Paris: Masson et Cie. 1935. Pp. 284. Price 45 fr.

THIS book, dealing with sexual impotence, comes from the pen of a urologist, who has sought to cover all the complex field of causation, diagnosis, and treatment. Of the importance of the subject most clinicians must be aware; but they may not have realized how many and diverse disorders of the function of the genito-urinary tract can be the cause of impotence. All these are described at length; and a second class, viz. psychical disturbances of one or other kind, also receives a great deal of attention. Little enough, on

the other hand, is said of organic disease of the spinal cord or roots—in fact, the subject is dismissed in a page; the genital symptoms of tabes are described very inadequately, and the occurrence of sexual disorders in other lesions of the cord is merely mentioned. To the neurologist these scant allusions to symptoms of clinical interest and of localizing value are particularly disappointing. The significance of the bulbocavernosus reflex in this connexion is ignored; nothing is said of sexual crises in tabes, of sexual exaltation in general paralysis; and the peculiar cases in which dissociation of sexual function is a symptom do not seem to be noticed.

Les Ramollissements Protubérantiels. By Dr. J. O. Trelles. Paris: G. Doin. 1935. Pp. 308. Price 50 fr.

RECENT studies on the vascularization of the pons have made it possible to differentiate a variety of syndromes in accordance with the vascular territory that is affected. Three sets of pontine vessels can be distinguished: the paramedian, the short circumferential, and the long circumferential. Lesions in the territory of the first of these are commonly disclosed by pontine hemiplegia or paraplegia, and, in the second, by cerebellar hemiplegia with or without hemianæsthesia. Complex vascular lesions may induce the syndrome of pseudobulbar palsy, of which a pontocerebellar variant can be described. Vascular lesions in the upper part of the pons, dorsal to the pèduncle (the region of the 'calotte') cause sensory disorder, paralyses of lateral deviation, cerebellar disturbance, and possibly myoclonic symptoms; the clinical syndromes are mostly due to lesions of the pontine branches of the superior cerebellar artery.

These and other forms of syndrome are minutely analysed by Dr. Trelles, who bases his conclusions on the clinico-anatomical study of 25 cases. A chapter on the physiopathology of the syndromes explains very well most of the problems that arise in connexion with the relation of pontine symptoms to pontine lesions. The work is illustrated with about 100 figures, and is an excellent contribution to the neurology of the pons. It should find a place on the bookshelf of every practising neurologist.

Das Supra-vestibuläre System. By Dr. L. J. J. Muskens, Amsterdam. Amsterdam: N. V. Noord-Hollandsche Uitgevers-Maatschappij. 1935. Pp. 557. Price RM. 25.

THE full title of Dr. Muskens' monograph is 'The supravestibular system in animals and man, with especial reference to the clinical study of ocular palsies, so-called frontal ataxia, forced postures, and forced movements.' This is a comprehensive subject which has interested the author for many years, and to which he has made a large number of valuable contributions.

The book under review may be said to be the culminating study of his lifetime. It covers an immense range. Beginning with an account of the origin of forced movements in three different planes in the experimental animal, depending on lesions of the otolith mechanism and of other parts of the brain, he proceeds to a still more elaborate investigation of forced movements in higher animals and in man, and discusses their relation to lesions above the peripheral organs, i.e. supravestibular. At this point the author examines the rôles alleged to be enacted by cerebellum, inferior olive, primary and secondary vestibular nuclei. Another division of the book is devoted to consideration of ocular palsies, forced movements of the eyes, vestibular nystagmus, skew deviation, paralysis of vertical and lateral deviation, etc., and the relation of all these to supravestibular fibre-systems. He then passes to analyse so-called supratentorial ataxia. Further sections are concerned with the oculogyric spasms of postencephalitic Parkinsonism, optic nystagmus, the central mechanisms for willed ocular and trunk movements, etc. Enough, however, has been said to indicate the remarkably wide limits of the author's topic. We do not know any single volume dealing with these matters that embodies so much original research and provides so useful a summary of the present state of knowledge in regard to them. The labour of compiling and writing it must have been immense. It is a splendid monument to the author's ability and industry, which will remain authoritative for a long time.

The Brain as an Organ. By Dr. Frederic Wertham and Dr. Florence Wertham. With an introduction by Dr. Adolf Meyer. New York: The Macmillan Company. 1934. Pp. 538. Price 31s. 6d. net.

Two chapters in this text-book of neuropathology, as it might be called—for its central subject and the major part of the book deal with the pathological anatomy of the brain—stand out for a double reason; they put into well-chosen words the underlying conceptions and limitations of morbid anatomy, and at the same time link it to a wider and richer topic, viz. that of the constitution of the body as a whole. They are entitled respectively The Interpretation of Lesions, and Correlation of Lesions with Psychopathological Phenomena. In the reviewer's opinion, both of these chapters should be read and re-read by everyone who studies the nervous system at the end of a microscope. They say what has been too often left unsaid, that no 'anatomy of the psychoses' or 'pathology of the mind' exists as yet; that most of what generally goes by the name of neurophysiology is really anatomy; that histological-clinical correlations have to be erected on a much wider basis than is usually thought. Another point made by the authors is that neurohistology needs to come into line with somatohistology, and that cerebral lesions will be better comprehended when they are no longer considered 'unique' of their kind, but comparable to those in other organs.

The book has over 100 plates of neuropathological subjects, reproduced

beautifully by the aquatone process. It contains a compendium of neuropathology, and opening chapters on post-mortem and histological technique. But it is distinguished from a number of works devoted to the same subject by its manner of looking beyond the lesions to their meaning, to their place in the biological scheme.

Essai sur les Névralgies du Trijumeau. By Dr. Maurice Deparis. Paris : Louis Arnette. 1935. Pp. 273.

THE *Thèse* of Dr. Maurice Deparis is divided into two parts; the first, descriptive, is taken up with the symptoms of trigeminal neuralgia of different types; the second discusses critically the results obtained by two or three of the newer modes of surgical treatment. Among these are the partial retrogasserian neurotomy of Frazier and the juxtapontine neurotomy of the sensory root as performed by Dandy. The material used by the author comprises 31 cases submitted to operation. In his experience the latter technique is preferable to the former, because it is 'never' followed by keratitis and does not entail the postoperative changes in facial sensibility and of face and buccolingual mucosa that the other does. But he hastens to add that one is not the rival of the other, and that the method of Dandy should be reserved for certain selected cases.

The book provides a useful mise-au-point in respect of present-day modes of dealing with trigeminal neuralgia.

Les Migraines. By Professor Pasteur Vallery-Radot and Dr. Jean Hamburger, Paris. Paris : Masson et Cie. 1935. Pp. 231. Price 45 fr.

THIS recent addition to the large number of reviews, treatises, and monographs having migraine for their subject is written from an eminently practical standpoint. Its descriptions are succinct, its range comprehensive, its theoretical discussions short, while the chapter on treatment contains much in little space. At the close of each of the eight chapters is a bibliography, and the book also has, what is rare in French medical literature, an index, as well as the customary table of contents. Though containing perhaps little that is altogether novel, it furnishes evidence of wide research on the part of the writers, and serves a useful purpose as a conspectus of modern study on an age-old malady.

Practical Neurological Diagnosis. By Professor R. Glen Spurling, Louisville. With 99 figures. London : Baillière, Tindall and Cox. 1935. Pp. 233. Price 18s.

WITHIN the limits set by the author, who states that his book is designed for students and practitioners and written with 'special reference to the

problems of neurosurgery' (which are not, however, specified), he has performed his task with some adequacy. It would be a simple matter to point out how far it comes short of any thoroughgoing exposition of neurological diagnosis; under ophthalmoscopy reference is made to papilloedema and primary atrophy alone; oddly enough, the latter is stated to be caused, among other conditions, by 'inflammatory lesions primarily or secondarily involving the optic pathways.' Part three of the book deals with X-ray diagnosis, and is rather fuller than some other sections. A claim is made for submitting all epileptics to encephalography, whether they show localizing neurological signs or not; if this is done as a routine 'many surgical lesions will be demonstrated and many otherwise hopeless cases will be benefited.' This sanguine estimate of the value of surgical interference in epilepsy hardly agrees with others' experience.